

# **Lupin Mines Incorporated**

A wholly owned indirect subsidiary of Elgin Mining Inc.

## **Lupin Mine Site**

Nunavut, Canada

## **Water Quality Monitoring Plan and Quality Assurance/ Quality Control Plan**

(Care and Maintenance)

March 2013

Lupin Mines Incorporated  
Elgin Mining Inc.  
#201 - 750 West Pender Street  
Vancouver, BC, V6C 2T7

## Document Control

Revision No.	Date	Details	Author	Approver
1.0	30/03/13	Replaces Care and Maintenance Plan – <i>Sampling Procedure: Tailings Containment Area and Sewage Lakes Disposal Facility</i> , March 2012.  Replaces the <i>Environmental Laboratory Quality Assurance / Control Plan</i> , Prepared: March 1993, Revised: December 1995.  Update contact and general information.  Revised to include bioassay sample requirements.	D. Vokey	W. Osborne

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## **1 Introduction**

Lupin Mines Incorporated (LMI), an indirect wholly owned subsidiary of Elgin Mining Inc. (Elgin), has prepared this Water Quality Monitoring Plan and Quality Assurance / Quality Control Plan (the Plan).

An annual review of the Plan takes place and revisions are submitted as necessary with the annual report. The current Type A Water Licence 2AM-LUP0914 (Water Licence) for the Lupin Gold Mine (Lupin or the Lupin Mine or the Site) is valid until March 31, 2014 and has been kept in good standing.

### **1.1 Project and Company Information**

Elgin is a Canadian based company focused on the production at the Björkdal Gold Mine located in Sweden, and the exploration and development of the Lupin Gold Mine and Ulu Gold Project, both located in Nunavut, Canada.

Elgin purchased LMI, which owns the Lupin Mine, from MMG Resources Ltd. in July 2011. Lupin was in operation from 1982 to 2005 with temporary suspensions of activities between January 1998 and April 2000, and again between August 2003 and March 2004. The mine resumed production in March 2004 until February 2005. Since 2005, the Site has remained in Care and Maintenance.

General site maintenance and facilities upgrades are underway at the Lupin Mine in preparation for an underground exploration program. The activities underway were screened by the Nunavut Impact Review Board under file 99WR053 and approved by the Nunavut Water Board under Water Licence 2AM-LUP0914. Surface exploration is conducted under Water Licence 2BE-LEP1217. All camp infrastructure required for the surface exploration program currently exists at the Lupin Mine.

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Additional copies of this Plan are available from General Administration. The Plan is available at the LMI Environment Department office and a notice is posted in key locations at the site indicating where they can be found. All employees and contractors will be made aware of its contents.

## **1.2 Site Location**

The Lupin Mine is located in Kitikmeot Region, Nunavut, 400 km north of Yellowknife, Northwest Territories and 285 km southeast of Kugluktuk. The airport serving this Site is at 65° 46'00" N and 111° 14'41" W. The Site is on the western shore of Contwoyto Lake, approximately 60 km south of the Arctic Circle (Figure 1).

## **1.3 Environmental and Sustainable Development Policy**

Elgin Mining Inc. and its subsidiaries (collectively, "Elgin Mining") are committed to maintaining a safe, clean, compliant and respectful work environment. Elgin Mining looks to our employees, contractors and managers to adopt and grow a culture of social responsibility and environmental excellence. Together we achieve this by:

- Promoting environmental stewardship in all tasks. Nothing is too important that it cannot be done in a clean and responsible manner. We strive towards maintaining a zero-incident work place.
- Recognizing that we have a shared responsibility as stewards of the environment in which we operate. We will not walk away from a non-compliant act.
- Identifying, managing and mitigating environmental, business and social risks in an open, honest and transparent manner.
- Planning our work so it is done in the cleanest possible manner and executing work according to plan.
- Continually improving environmental and operational performance by setting and reviewing achievable targets.
- Providing appropriate and necessary resources in the form of training, personnel and capital, including that required for closure planning and reclamation.
- Managing our materials and waste streams, maintaining a high degree of emergency response preparedness and minimizing our operational footprint to maintain environmental protection at all stages of project development.
- Procuring goods and services locally, where available, and favouring suppliers with environmentally and socially responsible business practices.
- Seeking to understand, learn from and mitigate the root causes of environmental incidents and near misses when they do occur.
- Employing systems and technology to achieve compliance, increase efficiency and promote industry best practices in development, operations and environmental stewardship.
- Working with stakeholders to identify and pursue opportunities for sustainable social and economic development and capacity building.

- Conducting early and ongoing stakeholder engagement relevant to the stage of project and mine development and operation.
- Recognizing diversity in the workplace and building meaningful relationships with all stakeholders in a timely, collaborative and transparent manner.

Through implementation of this policy, Elgin Mining seeks to earn the public's trust and be recognized as a respectful and conscientious employer, neighbor and environmental steward.

*Approved by the Board of Directors on August 10th, 2012*

## **1.4 Purpose and Scope**

This Plan is an appendix to the Care and Maintenance Plan. The purpose of this Plan is to identify water quality monitoring requirements for the Site and minimize the impacts of potential sampling and analytical errors by providing a set of standardized procedures for sampling, analysis and reporting. These procedures are to be implemented by any personnel involved in monitoring for the purpose of regulatory compliance or internal environmental management.

The Plan documents Quality Assurance (QA) and Quality Control (QC) procedures for the Lupin Mine Monitoring Program as required by Type A Water Licence 2AM-LUP0914 Part J, Items 5, 6 and 7. The Plan also documents QA/QC procedures for the Lupin Mine Monitoring Program as required by the *Metal Mine Effluent Regulations* (MMER) under the *Fisheries Act* Part 2 Division 1 Item 11 and Part 2 Division 2 Items 12(2), 14(1), 17(1), and 19(3).

QA/QC planning has been developed in accordance with the Indian and Northern Affairs Canada (INAC), *Quality Assurance (QA) and Quality Control (QC) Guidelines for use by Class 'A' Licensees in meeting SNP Requirements and for Submission of a QA/QC Plan*, July 1996 which defines QA and QC as follows:

Quality Assurance: is the system of activities designed to better ensure that quality control is one effectively.

Quality Control: is the use of established procedures to achieve standards of measurement for the three principal components of quality: precision, accuracy and reliability.

Overall this Plan outlines field sample collection procedures including sampling requirements and methods; field sample identification, preservation and transport procedures; field sampling quality control measures; analytical laboratory information; and reporting requirements.

## **2 Field Sampling**

### **2.1 Sample Collection**

#### **2.1.1 Sampling Station Locations, Requirements and Parameters**

Sampling station locations, requirements, and parameter analyses are set out in the Type A Water Licence 2AM-LUP0914 Table 1 of Schedule J and in the MMER Part 2 Division 2 Items 12 thru 18 and Schedules 4 and 5.

Generally, samples are required from the following locations:

- Freshwater intake at Contwoyto Lake,
- Tailings Containment Area (TCA):
  - TCA prior to discharge;
  - TCA during discharge;
  - Reference areas; and
  - Downstream exposure areas,
- Sewage Lakes Disposal Facility, and
- Bulk Fuel Storage Facility.

The monitoring requirements outlined in the Water Licence and MMER effluent monitoring requirements are outlined in Table 1. Water sampling under the Environmental Effects Monitoring Program of the MMER will accompany any planned discharges from the TCA.

A sample event schedule is also provided in Table 2 which outlines the Water Licence and MMER effluent monitoring requirements as well as field monitoring and QC sample requirements (see Section 3 of this Plan for more details about QC monitoring). This table is intended to serve as a guide to on-site personnel with sampling responsibilities.

Regulatory authorities are to be notified of planned discharge events. Table 3 provides the notification schedule.



**Table 1: Sample collection requirements**

Station	Description	Samples											Frequency
		Routine <sup>(1)</sup>	Total Metals <sup>(2)</sup>	Nutrient <sup>(3)</sup>	Hg	CN	<sup>226</sup> Ra <sup>(6)</sup>	BOD <sub>5</sub> <sup>(7)</sup>	Faecal Coliform	Bio-assay <sup>(8)</sup>	BTEX <sup>(9)</sup>	OG <sup>(10)</sup>	
LUP-01	Freshwater intake from Contwoyto Lake	pH, Conductivity, TSS	X		X				X				Annually
LUP-10	TCA Pond 2 discharge at Dam 1A	pH, TSS	X			X							Daily during periods of discharge
		Daily	Daily	NH <sub>4</sub>			X						Weekly during periods of discharge
		Daily, hardness, Alkalinity, NO <sub>2</sub> , NO <sub>3</sub>	Daily	Weekly		X				X			Monthly (no less than one month intervals) beginning at start of decant
LUP-10/ 102 <sup>(11)</sup>	Internal station in TCA Pond 2 approximately 100 m upstream from siphon intake.	X	X	X	X	X	X			Static pass/ fail test			Twice per year, prior to initiation of decant and just prior to termination of decant
LUP-11	Minewater discharge at automatic sampler in the mill	INACTIVE											
LUP-12	Mill tailings taken at the mill	INACTIVE											
LUP-14	Decant structure from the Sewage Lakes Disposal Facilities	pH, TSS, Alkalinity, Hardness, NO <sub>2</sub> , NO <sub>3</sub>	X	NH <sub>4</sub> , TKN, TP, OPO <sub>4</sub>				X	X				First day of discharge and then monthly thereafter during periods of flow
LUP-15	Discharge from TCA Pond 1 (east pond) into TCA Pond 2 (west pond)	INACTIVE											
LUP-16	TCA Pond 2 at center	INACTIVE											
LUP-17	TCA Pond 2 upstream of station LUP-10	INACTIVE											
LUP-19	East end of Seep Creek in Dam 2 Lake	INACTIVE											
LUP-20	West end of Seep Creek before discharge into Unnamed Lake	pH, TSS, Alkalinity, hardness	X	NH <sub>4</sub>		X							Weekly during discharge from the TCA

Station	Description	Samples											Frequency
		Routine <sup>(1)</sup>	Total Metals <sup>(2)</sup>	Nutrient <sup>(3)</sup>	Hg	CN	<sup>226</sup> Ra <sup>(6)</sup>	BOD <sub>5</sub> <sup>(7)</sup>	Faecal Coliform	Bio-assay <sup>(8)</sup>	BTEX <sup>(9)</sup>	OG <sup>(10)</sup>	
LUP-21	North end of Concession Creek before discharge into Unnamed Lake <sup>(12)</sup>	pH, TSS, Alkalinity, hardness	X	NH <sub>4</sub>		X							Weekly during discharge from the TCA
		Weekly, NO <sub>3</sub>	X	Weekly		X	X						Monthly at mid-depth and when bioassay sample is collected at LUP-10 just prior to termination of decant
LUP-22	Inner Sun Bay near centre midway between end of peninsula and west shore	pH, TSS, Alkalinity, hardness	X	NH <sub>4</sub>		X							Weekly at mid-depth, commencing one week prior to discharge from the TCA and concluding two weeks after cessation of discharge
LUP-24	Inner Sun Bay near narrows <sup>(12)</sup>	pH, TSS, Alkalinity, hardness	X	NH <sub>4</sub>		X							Weekly at mid-depth, commencing one week prior to discharge from the TCA and concluding two weeks after cessation of discharge and when bioassay sample is collected at LUP-10 just prior to termination of decant
		Weekly, NO <sub>3</sub>	X	Weekly		X	X						Monthly at mid-depth
LUP-25	Outer Sun Bay	pH, TSS, Alkalinity, hardness	X	NH <sub>4</sub>		X							Weekly at mid-depth commencing one week prior to discharge from the TCA and concluding two weeks after cessation of discharge
LUP-26	Contwoyto Lake in bay east of water intake	INACTIVE											
LUP-27	Bulk Fuel Storage Facility	pH, TSS, Alkalinity, hardness, NO <sub>2</sub> , NO <sub>3</sub>	X	NH <sub>4</sub>							X	X	Once prior to discharge and weekly during periods of discharge

**Notes:**

- (1) Routine sampling may include analyses for pH, temperature, Total Suspended Solids, alkalinity, hardness, Nitrite (NO<sub>2</sub>), Nitrate (NO<sub>3</sub>);  
(2) Total metals refers to a whole suite of metals unless otherwise specified;  
(3) Nutrient means Ammonium (NH<sub>4</sub>), Total Kjeldahl Nitrogen (TKN), Total Phosphorus (TP), and Orthophosphate (OPO<sub>4</sub>);  
(7) BOD<sub>5</sub> means five (5) day Biological Oxygen Demand;

- (8) Bioassay means static pass/fail bioassay for both rainbow trout and *Daphnia* species under the Water Licence and acute lethality testing and *Daphnia magna* monitoring tests under the MMER;  
(9) BTEX means Benzene, Toluene, Ethylbenzene and Xylene  
(10) OG means Oil and Grease;  
(11) Water licence erroneously refers to this station as LUP-10; and  
(12) Field temperature and dissolved oxygen are also required.

**Table 2: Sampling event schedule.**

Sampling Events	Station	Samples and Parameters	Quality Control <sup>(1)</sup>
<b>TAILINGS CONTAINMENT FACILITY</b>			
One month prior to discharge	Station 102	Field pH, temperature, conductivity	1 field duplicate
		pH, TSS, alkalinity, hardness, NO <sub>2</sub> , NO <sub>3</sub>	
		Total Metals	
		CN (total cyanide)	
		NH <sub>4</sub>	
		Total Hg	
		<sup>226</sup> Ra	
Daily during water treatment prior to discharge	Station 102	Field pH, temperature and conductivity	
Upon receipt of results meeting discharge criteria and not less than one week prior to discharge	Station 102	Static pass/ fail Bioassay	
One week prior to discharge	Station 102	Field pH, temperature, and conductivity (Daily)	1 field duplicate
		Field observation of visual sheen	
	LUP-22, 24, 25 (at mid-depth)	pH, TSS, alkalinity, hardness	
		Total Metals	
		NH <sub>4</sub>	
		CN	
Daily during discharge	LUP-10	Field pH, temperature, and conductivity	1 field duplicate per week
		Field observation of visual sheen	
		flow rate m <sup>3</sup>	
		pH and TSS	
		CN	
		Total Metals (As, Cu, Zn)	
First day of discharge <sup>(2)</sup> (in addition to daily sampling)	LUP-10	Alkalinity, Hardness, NO <sub>2</sub> , NO <sub>3</sub>	1 field duplicate
		NH <sub>4</sub>	
		Total Metals	
		Total Hg	
		MMER Bioassay LC50	
		<sup>226</sup> Ra	
		Field dissolved oxygen	
	LUP-20, 21 (surface), LUP-22, 24, 25 (at mid-depth)	pH, TSS, alkalinity, hardness	
		Total Metals	
		NH <sub>4</sub>	
		CN	
	LUP-21 (surface), LUP-24 (at mid-depth)	NO <sub>3</sub>	
		Total Hg	
		<sup>226</sup> Ra	
		Field pH, temperature, conductivity, dissolved oxygen	

Sampling Events	Station	Samples and Parameters	Quality Control <sup>(1)</sup>
Weekly during discharge (in addition to daily sampling)	LUP-10	Alkalinity, hardness, NO <sub>2</sub> , NO <sub>3</sub>	1 field duplicate
		NH <sub>4</sub>	
		Total Metals (Pb, Ni, Cd)	
	LUP-20, 21 (surface), LUP-22, 24, 25 (at mid- depth)	pH, TSS, alkalinity, hardness	
		Total Metals	
		NH <sub>4</sub>	
		CN	
	Monthly during discharge (in addition to daily and weekly sampling)	LUP-10	
MMER Bioassay LC50			
Total Hg			
<sup>226</sup> Ra			
Field dissolved oxygen			
LUP-21 (surface), LUP-24 (at mid- depth)		NO <sub>3</sub>	
		Total Hg	
		<sup>226</sup> Ra	
		Field pH, temperature, conductivity, dissolved oxygen	
Last day of discharge (in addition to daily sampling)	LUP-10	Static Pass/ Fail Bioassay	
Weekly for two weeks following termination of discharge	LUP-22, 24, 25 (at mid- depth)	pH, TSS, alkalinity, hardness	1 field duplicate
		Total Metals	
		NH <sub>4</sub>	
		CN	
SEWAGE LAKES DISPOSAL FACILITY			
Three weeks prior to discharge	LUP-14	Field pH, temperature, conductivity	1 field duplicate
		Field observation for visual sheen	
		pH, TSS, alkalinity, hardness, NO <sub>2</sub> , NO <sub>3</sub>	
		Total Metals (As, Cd, Cu, Ni, Pb, Zn)	
		Nutrient for NH <sub>4</sub> , TKN, TP, OPO <sub>4</sub>	
		BOD <sub>5</sub>	
		Faecal Coliforms	
Daily during discharge	LUP-14	Field flow rate in m <sup>3</sup>	
		Field pH, temperature, conductivity	
		Field observation for visual sheen	
First day of discharge <sup>(2)</sup> and Monthly thereafter (in addition to daily sampling)	LUP-14	pH, TSS, alkalinity, hardness, NO <sub>2</sub> , NO <sub>3</sub>	1 field duplicate
		Total Metals	
		BOD <sub>5</sub>	
		Faecal Coliforms	
		Nutrient for NH <sub>4</sub> , TKN, TP, OPO <sub>4</sub>	

Sampling Events	Station	Samples and Parameters	Quality Control <sup>(1)</sup>
FRESHWATER INTAKE FACILITY			
Daily during intake	LUP-01	Field flow rate in m <sup>3</sup>	1 field duplicate
Annually		Field pH, temperature, conductivity,	
		pH, TSS	
		Total Metals (As, Cd, Cu, Ni, Pb, Zn)	
		Total Hg	
		Faecal Coliforms	
BULK FUEL STORAGE FACILITY			
One week prior to discharge (RUSH 48 hour turnaround for sample results are to be requested of the laboratory)	LUP-27	Field pH, temperature, conductivity	1 field duplicate
		Field observation for visual sheen	
		pH, TSS	
		Total Lead	
		Total Oil and Grease	
		BTEX	
		Nutrient for NH <sub>4</sub>	
Daily during discharge		Field flow rate in m <sup>3</sup>	
		Field pH, temperature, conductivity	
		Field observation for visual sheen	
Weekly during discharge (in addition to daily testing)		Field pH, TSS	1 field duplicate
		Total Lead	
		Oil and Grease	
		BTEX	
	Nutrient for NH <sub>4</sub>		

**Notes:**

- (1) Duplicate samples must be collected for approximately every ten (10) field samples collected across the range of parameters. At least one duplicate must be submitted per sample shipment.
- (2) Samples are collected on the morning of the next plane departure after discharge commences.

**Table 3: Discharge notification schedule.**

Discharge Event	Schedule	Action Required
TAILINGS CONTAINMENT AREA	30 days prior to MMER Bioassay	Provide notice to Environment Canada of planned sample date.
	10 days prior to discharge	Provide notice to the AANDC inspector, include analytical results and estimated volume of discharge.
LOWER SEWAGE LAKE	10 days prior to discharge	Provide notice to the AANDC inspector, include analytical results and estimated volume of discharge.
BULK FUEL STORAGE FACILITY	10 days prior to discharge	Provide notice to the AANDC inspector and estimated volume of discharge <sup>(1)</sup> . Analytical results will be provided upon receipt and no discharge to occur prior to AANDC acknowledgment of receipt.

**Note:**

- (1) Discharge from the bulk fuel storage facilities needs to commence as soon as possible when water starts accumulating in the spring.

Active monitoring (sampling) station locations as shown in Figure 2.1 are clearly identified in the field with permanent stakes and appropriate signage.

Samples must always be collected from the same locations, unless the sampling locations are relocated at the request of the designated AANDC Inspector or sampling location modifications are approved in writing by the Nunavut Water Board.

The following Table 4 summarizes the current UTM coordinates of the active sampling locations:

**Table 4: Water quality monitoring program station locations.**

Monitoring Station No.	Description	UTM Northing	UTM Easting
LUP-01	Freshwater intake from Contwoyto Lake	7294933	490030
LUP-10	TCA Pond 2 discharge at Dam 1A	7289689	485843
LUP-14	Decant structure from the Sewage Lakes Disposal Facilities	7293013	490187
LUP-20	West end of Seep Creek before discharge into Unnamed Lake	7290197	480149
LUP-21	North end of Concession Creek before discharge into Unnamed Lake	7290217	479841
LUP-22	Inner Sun Bay near centre midway between end of peninsula and west shore	7291749	479175
LUP-24	Inner Sun Bay near narrows	7293121	479017
LUP-25	Outer Sun Bay	7293765	478352
LUP-27	Bulk Fuel Storage Facility	7293609	489072
Station 102	Approximately 100 m upstream from the siphon intake in TCA Pond 2	7289875	486196

### 2.1.2 Field Measurements and Field Log Book

Where required by the monitoring program, pH, temperature and, conductivity and dissolved oxygen of water is measured and recorded in the field directly from the water body being sampled wherever possible. Where it is not possible to take field measurements directly from the water body, the measurements can be taken from the sample bottle.

The pH and conductivity meters must be calibrated in advance of each day's sampling activities according to the manufactures instructions, using fresh standard calibration solutions. Any discrepancies must be recorded in the Field Log Book along with the sampling data; however recorded field measurements must not be altered due to calibration issues. Refer to the pH and conductivity meter manuals for instructions regarding how to calibrate and take measurements with the particular devices.

Details of all sampling activities are recorded in the Field Log Book including:

- Date and time of each sample collected,
- Sampling location visited,
- Weather conditions and air temperature,
- Flow rates where applicable,
- Integrity of sample location and water observations,

- Samples collected at each location including identification number (see Section 2.2), whether the sample will be submitted for analysis, and type of analysis as well and sample preservation measures,
- Sample depth where applicable, and
- Field measurements (i.e. pH, conductivity, temperature, dissolved oxygen) as well as any calibration discrepancies with the field meters.

Immediately following field activities, an electronic copy of the Field Log data must be made. Field log entries in the Field Log Book must not be altered; pages must not be removed; space or pages left blank must be labeled as such and crossed with a diagonal line; and errors must be crossed out, not erased.

### **2.1.3 Sample Containers**

Sample container sizes and materials of construction depend upon the parameter(s) of the sample to be analyzed. A summary of sample container requirements for various parameters is provided in Table 2.5 (Section 2.3 of this Plan).

All water quality sample containers will be prepared and supplied by the contracted laboratory. Only clean, unused containers should be used to limit contamination and preservation errors. Samples analyzed for faecal coliform tests must be contained in bottles provided by the laboratory to ensure that the bottle is sterilized prior to use. Toxicity samples are to be collected in food grade containers, such as water jugs or buckets. The food grade containers must be thoroughly cleaned and rinsed and then triple rinsed with the sample water prior to being filled.

### **2.1.4 Sampling Methods**

Water quality sampling methods are as follows:

- Record details of the sampling activity and field measurements in the Field Log Book (see Section 2.1.2 for details).
- In the field, disposable nitrile sampling gloves must be worn during handling of all the bottles and equipment.
- Triple rinse sample bottles with the source water prior to sample collection, except for those bottles with preservative already added by the laboratory (i.e. BTEX), as well as those bottles for Oil and Grease or Faecal Coliform analysis.
- Collect samples off-shore as much as possible without disturbing bottom sediments.
- When collecting samples from flowing bodies of waters (i.e. stream, creeks):
  - The sample must be collected as close as possible to the middle of the flowing water body. To prevent the stirring up of sediment, use a container attached to a pole extension. Otherwise, if wading into the stream is unavoidable, wait for the sediment to settle or flow away before collecting the sample.
  - When rinsing, plunge the sample bottle into the flowing water toward the current allowing it to fill at a depth of approximately half the stream depth. If the stream depth is too shallow to collect a clean sample without disturbing sediment or too shallow to fill the bottle completely, use a smaller bottle and transfer the water to the larger sample bottle.

- Empty rinse water downstream of the sample locations so as not to disturb sediments.
- When collecting samples from surface water bodies (ponds, lakes) follow the same procedures as above for flowing bodies of water, ensuring that subsequent samples are collected at the same location, and by plunging the sample bottle into the water to a depth of about six (6) inches below the water surface.
- Sample bottles must be filled with room left for preservative addition and mixing. Add preservatives after filling as directed by the laboratory (unless the bottle was provided pre-loaded with preservatives by the laboratory).
- Record field measurements (pH, temperature, conductivity, dissolved oxygen) and any deviations from the sample collection method in the Field Log Book.

## **2.2 Sample Identification**

All water samples must be provided with a unique sample identification number based on the following example:

***Example: LUP-22-130801-50***

LUP-22	Refers to the monitoring station.
130801	Refers to the date that the sample was collected (yy/mm/dd). In this example the date the sample was collected was August 1, 2013.
50	Refers to the depth in centimeters from surface which the sample was collected. If the depth of the sample is not applicable do not include the suffix.

Sample labels including at a minimum: sample identification number, location, date, and parameters for analyses should be prepared as much as possible before entering the field for the sampling event with a waterproof, non-smear pen. Then, sample labels, bottles and preservatives should be packed, preferably in a cooler to maintain constant temperature, for transport to the field.

Sample bottle labels must be clearly and consistently labeled prior to being sent to the external laboratory with the following information:

- Company name,
- Site name,
- Sample Station Number,
- Sample Number,
- Sample Date and Time, and
- Analysis required.

Quality Control (QC) samples (i.e. field blanks, trip blanks, duplicates) are provided with unique sample identification numbers and note of the sample as a QC sample is recorded in the Field Log Book.



## 2.3 Sample Preservation

Water quality samples must be preserved, either by laboratory issued chemical preservative or temperature control, immediately following sample collection to ensure that the quality of the water sample remains similar to the source water. The following Table 2.5 summarizes the required containers, preservatives, holding times, and minimum sample volumes for each parameter as outlined in ALS Environmental's Western Canada Sampling/ Handling Guide, May 2012.

**Table 5: Required sample containers, preservation, holding times, and sample volumes for analysis of specific parameters.**

Parameter	Container Type	Preservative	Holding Time	Min. Sample Volume
pH <sup>(1,6)</sup>	0.5 – 1 L plastic	4° C	0.25 hours	50 mL
TSS <sup>(1)</sup>	0.5 – 1 L plastic	4° C	7 days	200 mL
Conductivity <sup>(1,6)</sup>	0.5 – 1 L plastic	4° C	28 days	50 mL
Total Metals and Hardness <sup>(2,5)</sup>	250 mL plastic	3 mL 1:3 Nitric Acid	6 months	200 mL
Mercury	250 mL plastic	3 mL 1:3 Nitric Acid	28 days	50 mL
Radium <sup>226</sup>	1 L plastic	9 mL 1:3 Nitric Acid	6 months	1 L
Cyanide (Total, WAD or Free)	250 – 500 mL plastic	1 – 2 mL 6N Sodium Hydroxide	14 days	100 mL
Cyanide (Total or WAD (low level))	1 L plastic	3 mL 6N Sodium Hydroxide	14 days	750 mL
Alkalinity <sup>(1)</sup>	0.5 – 1 L plastic	4° C	14 days	150 mL
Total Ammonia Nitrogen	250 mL plastic/glass	1 mL 1:1 Sulphuric Acid	28 days	100 mL
Nitrate, Nitrite, Ammonia (unpreserved) <sup>(1)</sup>	0.5 – 1 L plastic	4° C	2 days	50 mL
Kjeldahl or Organic Nitrogen	250 mL plastic or glass	1 mL 1:1 Sulphuric Acid	28 days	200 mL
Total Nitrogen	250 mL plastic or glass	1 mL 1:1 Hydrochloric Acid	28 days	200 mL
Total Phosphorus	250 mL plastic	1 mL 1:1 Sulphuric Acid	28 days	100 mL
Ortho Phosphate <sup>(1)</sup>	0.5 – 1 L plastic	4° C	2 days	50 mL
BOD <sub>5</sub> <sup>(1)</sup>	0.5 – 1 L plastic	4° C	2 days	500 mL
Faecal Coliforms	250 mL sterilized plastic	Sodium Thiosulphate	30 hours	250 mL
Oil and Grease	2 x 0.5-1 L amber glass	2 mL 1:1 HCL or 1:1 H <sub>2</sub> SO <sub>4</sub>	28 days	1 L
BTEX <sup>(3,4)</sup>	2-3 x 40 mL glass vials	Sodium Bisulphate or Thiosulphate	14 days	40 mL
Daphnia Magna (pass/fail, LC50) <sup>(7)</sup>	1-2 L glass or plastic	4° C	5 days	1 – 2 L
Rainbow Trout (pass/ fail, LC50) <sup>(8)</sup>	1-2 20 L bladder	4° C	5 days	20 – 40 L

**Notes:**

- (1) Parameters may be analyzed from a single unpreserved bottle.
- (2) For dissolved parameters, samples must be field filtered before preservation.
- (3) 40 mL glass vials must be filled with no headspace. May contain preservative. Do not pre-rinse with sample. If sample is chlorinated use thiosulphate preservative.
- (4) All volatile organics in water (chlorinated aromatics, BTEX, volatile organics, THMs and halogenated aliphatics) can be analysed from the same set of vials. Consult ALS whether 2 or 3 vials are required.
- (5) If field filtering is not possible, or poses unacceptable risks for sample contamination, then send the samples unfiltered to and unpreserved to the laboratory as soon as possible.
- (6) Testing in the field is recommended.
- (7) For Daphnia Magna (LC50), require 2 L minimum volume. For Daphnia Magna (Pass/Fail), require 1 L minimum volume.
- (8) For Rainbow Trout (LC50), 2 x 20 L bladder and 40 L minimum volume required. For Rainbow Trout (Pass/Fail), 1 x 20 L bladder and 20 L minimum volume required.

## **2.4 Sample Transportation**

Sample integrity will be preserved from the time of sample collection to completion of delivery to the laboratory by limiting exposure of samples to heat, light, and agitation.

Sample bottles will be packed standing upright and immobile in a new or laboratory issued portable cooler. Samples suspected of elevated contaminant levels, such as a sewage sample, will be shipped separately from clean samples. All samples will be stored and transported at 10°C to 1°C in the coolers with ice packs and the cooler will be securely closed prior to shipping. Samples will be shipped as soon as possible following sample collection with appropriate transportation instructions such as “refrigerate” and “do not freeze”.

## **2.5 Chain of Custody Forms**

A Chain of Custody Form containing the following information is completed by the sampler for every cooler shipment of samples:

- Company name and contact information,
- Analytical laboratory name, address , and contact person,
- Invoicing instructions,
- Report format requested,
- Project information,
- Sampler’s name,
- Sample identification number, time and date of sampling, sample type, and analyses requested,
- Any special instructions, and
- Name of person releasing the shipment as well as date and time of release. Each person relinquishing and receiving the samples, including the courier, must sign the Chain of Custody form.

Each cooler shipped must have a Chain of Custody form indicating those samples contained in the particular cooler. Chain of Custody forms should be enclosed in a Ziploc bag to protect them from possible water damage during shipment.

One copy of the Chain of Custody form is included with the shipment and one copy must remain at the mine site for recording keeping. An example of the Chain of Custody Form is provided in Appendix A.

### **3 Field Quality Control**

#### **3.1 Trip or Travel Blanks**

Travel blanks are supplied and shipped by the laboratory to test for possible contamination that might arise during the handling, transport, or storage of the samples. The identity of these samples must be recorded in the Field Log Book.

One travel blank must be submitted per sample shipment.

#### **3.2 Duplicates or Replicates**

Duplicate or replicate sampling is the collection of more than one sample for a given analysis at a given location to test the validity of sampling procedures and laboratory methodology. Duplicates are collected, handled, and analysed using the same procedures applied to routine samples. Duplicates are submitted to the laboratory with a unique (fictitious) identifier to prevent association of the paired samples. The identity of these samples must be recorded in the Field Log Book.

Duplicate samples must be collected for approximately every ten (10) field samples collected across the range of parameters. At least one duplicate must be submitted per sample shipment.

### **4 Laboratory Analyses**

ALS Environmental laboratories (ALS) located in Edmonton, AB performs the required environmental analyses for the Lupin Mine, with the exception of MMER toxicity testing which is subcontracted by ALS to Nautilus Environmental in Burnaby, BC.

ALS is accredited by the Canadian Association for Laboratory Accreditation Inc. (CALA) and conforms to the requirements of ISO/IEC Standard 17025. Attached in Appendix B is a copy of the ALS Edmonton laboratory scope of accreditation. The scope of accreditation of all ALS laboratories is available from their website at <http://www.alsglobal.com/en/Our-Services/Life-Sciences/Environmental/Quality-Assurance>.

Nautilus Environmental is accredited by the CALA to conduct acute lethality and Daphnia magna monitoring tests and conforms to the requirements of ISO/IEC Standard 17025. Attached in Appendix B is a copy of the Nautilus Environmental Burnaby laboratory scope of accreditation.

The scope of accreditation of Nautilus Environmental laboratories is available from their website at <http://www.nautilusenvironmental.com/accreditation.aspx>.

Taiga's drinking water package covers the drinking water standards of the Department of Health and Social Services requirements for the sampling and testing of drinking water. Attached in Appendix B is a copy of the Taiga Environmental Laboratory accreditation for fecal coliform analysis.

All analyses are conducted in accordance with methods prescribed in the current edition of Standard Methods for the Examination of Water and Wastewater including regular QA/QC during the analysis of

field samples including a program of method blanks, laboratory control samples, instrument calibration samples, matrix spikes, and duplicates.

## **5 Reporting**

All analytical results will be forwarded in electronic format from ALS to LMI for data collection and management. Upon receipt, LMI will review the results to identify any anomalies. Anomalous results will be either re-analyzed by the laboratory or new samples will be collected to confirm the analytical results.

Any analytical results that indicate exceedance of regulatory criteria will be reported to the appropriate agencies including the NWB and the AANDC inspector.

Part J Item 9 of the Lupin Mine Water Licence requires LMI to include in its Annual Report (due March 31<sup>st</sup>), all data, monitoring results and information required by Part J of the Water Licence. Under the MMER effluent monitoring reporting of all tests and monitoring conducted during each quarter is to be reported not later than 45 days after the end of a quarter. A report summarizing the previous calendar year is also required under the MMER to Environment Canada (due March 31<sup>st</sup>).

To facilitate the required annual reporting, LMI prepares written monthly reports supported by laboratory analyses results table summaries and quality assurance review. Each monthly report includes the following:

- A description of the sample activities undertaken,
- Description of the existing conditions at each sampling station,
- Tabular summary of analytical lab result including the results of the quality control samples (travel blank, field blank, duplicate samples), and
- Interpretation of the analytical lab results including comparison of the results with water licence criteria and assessment of the reliability of the results.

Within the annual report, the acceptability of samples will be evaluated qualitatively by examination of the trip blanks and field duplicate sample data. Reproducibility of samples will be expressed as relative percent difference (RPD):

$$RPD = 100 * ((X_1 - X_2) / (X_1 + X_2) / 2)$$

Where  $X_1$  is the original sample concentration,  $X_2$  is the duplicate sample concentration, and  $X_1 - X_2$  denotes the absolute value of the difference between these two concentrations.



#### Legend

 Project Location

Coordinate System: NAD\_1983\_UTM\_Zone\_12N

Map Sources/Notes:  
Various Canadian Government Websites - Feb 2012



1:15,000,000

Approved By: SH      Prepared By: PW  
Project No.: LUP      Date Revised: 21 Mar 2012  
File Name: Lup-12-10-01-LocationMap-A.mxd

Project:

**Lupin Project**

Location: Kitikmeot Region, Nunavut, Canada

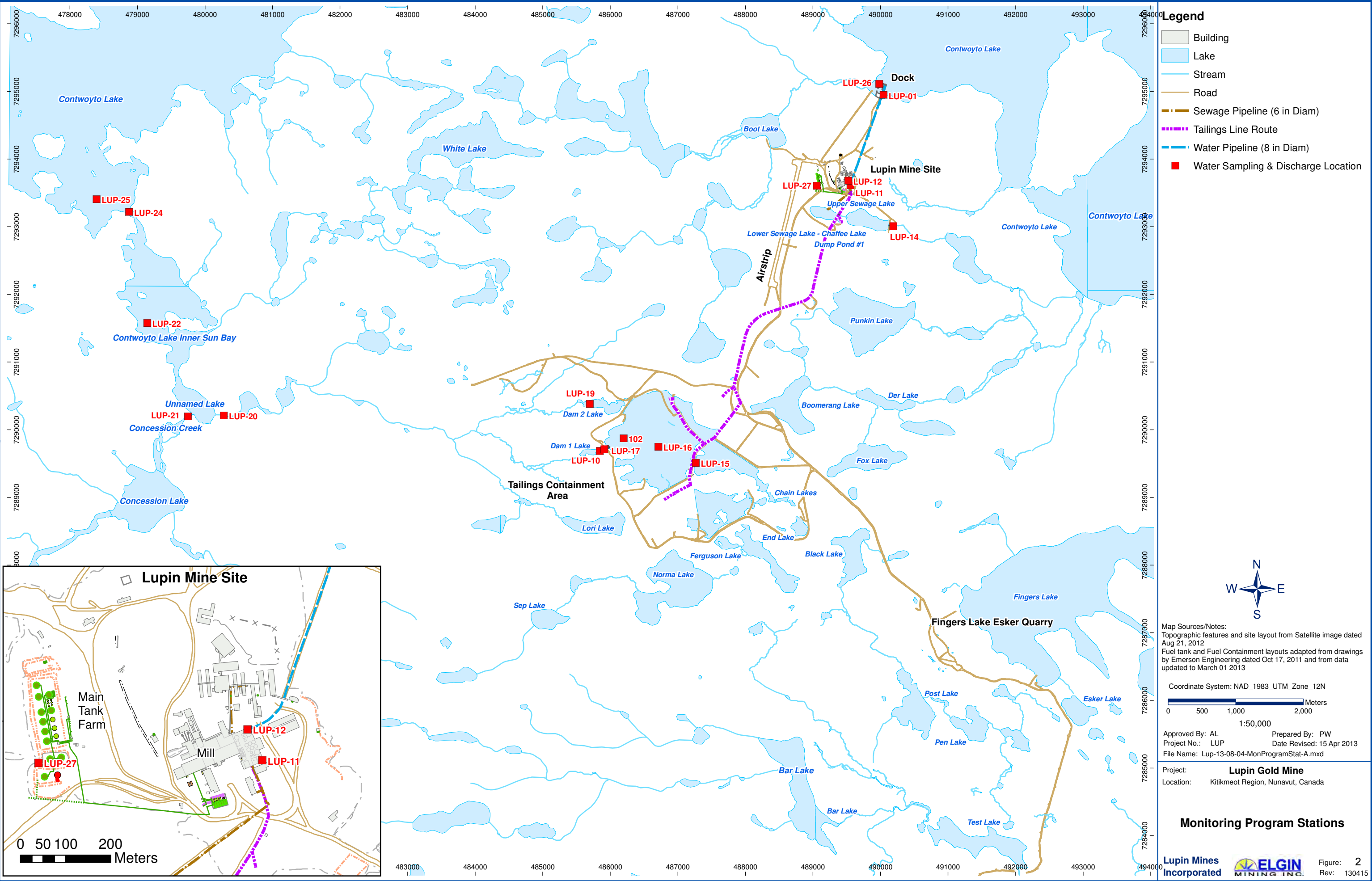
Lupin Mine Annual Report - Water Licence 2AM-LUP0914

### Location Map - Lupin Mine

**Lupin Mines  
Incorporated**

 **ELGIN  
MINING INC.**

Figure: **1**  
Rev: 120321



## Appendices

## Appendix A: Chain of Custody





## Appendix B: Scope of Accreditations



## ALS Quality Control Protocols

08 May, 2012

Quality control samples are introduced into batches of samples at critical points of sample handling, preparation and analysis to demonstrate the processes are performing as expected. In general, quality control samples are considered either Instrument QC or Method QC.

### Instrument QC:

Instrument QC samples demonstrate control for the instrumental portion of a method. Instrument QC requirements must be successfully met before the analysis of Method QC or samples may proceed.

- Verification of initial calibration - criteria varies with each test.
- 2<sup>nd</sup> source Calibration Verification Standard (CVS) – at minimum, with each initial calibration.
- Continuing Calibration Verification (CCV) – frequency varies by test.
- Instrument Blanks – usage and frequency varies by test.

### Method QC:

Method QC samples encompass the entire method and are initiated at the earliest point of the method where appropriate. Refer to the QC Definitions below. One set of Method QC is included for each batch of up to 20 client samples. Each set includes:

- 1 Method Blank.
- 1 Sample Duplicate. \*
- 1 Lab Control Sample.
- 1 Reference Material or Matrix Spike. \*\*
- Surrogate Compounds.

\* Duplicate analyses are not performed where sub-sampling is not possible – e.g. most tests for organics in water.

\*\* Spikes and Reference Materials are unavailable for Microbiology tests.

Method QC must be successfully analyzed before sample results are approved. Method QC results are normally reported to ALS clients with data reports.

### Data Quality Objectives (DQOs):

DQOs are established for each QC sample, based on a combination of reference method objectives, customer requirements and historical test method performance. Where applicable, prescriptive elements of reference methods take precedence over internal DQOs. Current DQOs are available upon request.

Detailed descriptions of how DQOs are evaluated for different types of Quality Control samples are described on the following pages.



## Types of Quality Control – Definitions and Evaluation Protocols

**Method Blank (MB)** - A blank sample prepared to represent the sample matrix as closely as possible and analyzed exactly like the calibration standards, samples, and quality control (QC) samples. Results of Method Blanks provide an estimate of the within batch variability of the blank response and an indication of bias introduced by the analytical procedure.

Except in special cases (as outlined in ALS DQO summary documents) the ALS DQO for Method Blanks is for all results to lie below the Limit of Reporting (LOR).

**Laboratory Sample Duplicate (DUP)** - A second portion of sample taken from the same container as the sub-sample used for the primary analysis, that is analyzed independently through all steps of the laboratory's sampling and analytical procedures. Duplicate samples are used to assess variance of the total method including sampling and analysis.

Duplicate precision is normally measured as Relative Percent Difference (RPD), where  $RPD = |(Result2 - Result1) / \text{Mean}| * 100$ . Duplicate samples should normally agree to within the ALS Precision DQO for the test and parameter (expressed as RPD), or within  $\pm 2 \times$  the LOR (for low level results). Refer to the ALS DQOs for Precision for specific limits for any given test.

ALS does not establish DQOs for Field Sample Duplicates. However, it is generally understood and accepted that the variability of Field Sample Duplicates is significantly more than what is observed with Laboratory Sample Duplicates.<sup>1</sup>

**Laboratory Control Sample (LCS)** - A known matrix spiked with compound(s) representative of the target analytes. An LCS is used to verify the accuracy of the laboratory's performance of the test.

LCS accuracy is calculated as the measured amount divided by the target concentration, and is normally expressed as percent recovery. LCS recoveries should normally lie within the ALS Accuracy DQOs for the test and parameter. For a low level LCS, the result should lie within  $\pm 1 \times$  the LOR of the target concentration. Refer to the ALS Accuracy DQOs for specific limits for any given test.

**Reference Material (RM)** - A material or substance, one or more of whose property values are sufficiently homogeneous and well established to be used for the calibration of an apparatus, the assessment of a measurement method, or for assigning values to materials. An RM is similar to an LCS, but encompasses a representative sample matrix. Similar to an LCS, an RM is used to verify the accuracy of the laboratory's performance of the test, but including the challenges of a complex sample matrix.

RM accuracy is calculated, expressed, and evaluated similarly to LCS accuracy. Refer to ALS Accuracy DQOs for specific limits for any given test.

**Matrix Spike (MS)** - A sample prepared by adding a known amount of a target analyte to a specified amount of a sample for which an independent estimate of the target analyte concentration is available. Spiked samples are used, for example, to determine the effect of the sample matrix on a method's recovery efficiency.

Matrix Spike results are calculated and expressed as percent recovery, by dividing the measured result (minus any analyte contribution from the unspiked sample) by the target analyte concentration. Matrix Spike results should normally lie within the ALS Accuracy DQOs for Matrix

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<sup>1</sup> Depending on the type of Field Sample Duplicates being evaluated (e.g. Co-located versus Split Sample Duplicates), ALS recommends DQOs for Field Sample Duplicates that are between 1.5 – 2.0 times higher than our Laboratory Sample Duplicate DQOs. Co-located Sample Duplicates generally require higher DQOs than Split Sample Duplicates.



Spikes. Matrix Spike results cannot be calculated or reported in cases where the background concentration of the test parameter in the sample is too high relative to the spike level.

**Surrogate Compounds (SURR)** – Surrogate Compounds are added to every sample where applicable (organics tests only). They are substances with properties that mimic the analyte of interest, and which are unlikely to be found in environmental samples. They are added at known concentration to samples to establish that the analytical method has been properly performed.

Surrogate results are calculated and expressed as percent recovery, by dividing the measured result against the expected target concentration. Refer to ALS Accuracy DQOs for specific limits for any given test.

## Automated Relational Checks

In addition to all our standard Quality Control checks, ALS also employs dozens of “Relational Checks”, which are programmed into our Laboratory Information Systems (LIMS) to automatically highlight any situations where the expected relationships between different test parameters are violated, which can often point to errors. Such errors may originate with field sampling, or from laboratory processes, but should always be identified and pro-actively investigated.

**Total versus Dissolved Metals (“D > T” Check)** – One of the most important and common relational checks we do is a check for situations where Dissolved Metal concentrations significantly exceed Total Metal concentrations. By definition, this situation should not occur. However, there are a few reasons why this can occur:

- i) Circumstances where Dissolved Metals slightly exceed Total Metals are expected in a small percentage of samples, simply due to normal random variability. In fact, when all metals in a test sample exist in the dissolved form, we expect that Dissolved Metals measurements will numerically exceed Total Metals measurements exactly half the time (by a small margin), simply due to random chance.
- ii) Samples to be analyzed for Dissolved Metals must be filtered, which is normally done in the field. Filtration processes are a common source of low level metals contaminants. Contamination of a sample during filtration is the most common source of significant D > T issues.
- iii) Field samples for Dissolved and Total Metals are normally collected independently, so variability of the sampling process is another common cause of D > T issues.

If none of the above causes can explain a situation where Dissolved Metals exceed Total Metals, then another type of error may be indicated, either with the collection of the sample in the field, or with sample containers or preservatives, or with the laboratory testing process.

***ALS automatically highlights and investigates all circumstances where a Dissolved Metal result exceeds the Total Metal result by 20% RPD or more, but only if the absolute difference between the two results is greater than the sum of the Limits of Reporting (Detection Limits) of the two results.***

The mechanism of this relational check is derived from the ALS Duplicate DQOs for Metals in Water.

All D > T relational checks that violate the rule above are flagged internally, and are investigated by ALS before sample results will be released to our clients. In most cases, results will be re-analyzed to confirm or correct the anomalous relationship. If results are confirmed by re-analysis, the following data qualifier is applied:

**DTC:** Dissolved concentration exceeds total. Results were confirmed by re-analysis.



### **Other Important Relational Checks Conducted by ALS**

ALS employs dozens of other relational checks to highlight anomalous relationships between test parameters. Some of more common checks include the following:

- *Total Ammonia should not exceed Total Kjeldahl Nitrogen*
- *Weak Acid Dissociable Cyanide should not exceed Total Cyanide*
- *E. coli should not exceed Fecal Coliforms*
- *Nitrate + Nitrite should not exceed Total Nitrogen*
- *Hexavalent Chromium should not exceed Total Chromium*
- *True Colour should not exceed Apparent Colour*
- *Mineral Oil and Grease should not exceed Total Oil and Grease*
- *Reactive Phosphorus should not exceed Total Phosphorus*



# CALA

Canadian Association for  
Laboratory Accreditation Inc.

## CALA Directory of Laboratories

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**Membership Number:** 1352

**Laboratory Name:** ALS Environmental (Edmonton)

**Parent Institution:** ALS Canada Ltd.

**Address:** 9936 - 67th Ave. NW Edmonton AB T6E 0P5

**Contact:** Ms. Anne Beaubien

**Phone:** (780) 413-5988

**Fax:** (780) 437-2311

**Email:** alsed.quality@alsglobal.com

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**Standard:** Conforms with requirements of ISO/IEC 17025

**Clients Served:** All Interested Parties

**Revised On:** November 27, 2012

**Valid To:** May 28, 2015

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### Scope of Accreditation

#### Air (Inorganic)

Dustfall - Air (120)

ED-TM-1030; modified from AB ENVIRONMENT 32020

GRAVIMETRIC

Dustfall, Fixed

Dustfall, Total

#### Air (Inorganic)

Fluoride - Air (188)

ISOP 145, ISOP 117; modified from SM 4500-F C

SELECTIVE ION ELECTRODE

Fluoride

#### Air (Inorganic)

Mercury - Air Filter (190)

ISOP32/ISOP160; modified from NIOSH 6009/EPA 245.1

COLD VAPOUR AA - DIGESTION

Mercury

#### Air (Inorganic)

Metals - Air Filter (016)

ISOP 32/ISOP 96; modified from EPA 200.8, NIOSH 7303

ICP/MS - DIGESTION

Aluminum

Barium

Beryllium

Cadmium

Calcium

Chromium

Cobalt

† "OSDWA" indicates the appendix is used for the analysis of Ontario drinking water samples, which is subject to the rules and related regulations under the Ontario "Safe Drinking Water Act" (2002).

The list of tests and measurement capabilities for which a laboratory is accredited can change at any time due to circumstances such as scope extensions, voluntary withdrawal of tests by the laboratory and suspension. Scopes are published by the CALA via the Internet at [http://www.cala.ca/cala\\_directories.html](http://www.cala.ca/cala_directories.html)

Copper  
Iron  
Lead  
Magnesium  
Manganese  
Molybdenum  
Nickel  
Potassium  
Silver  
Sodium  
Strontium  
Thallium  
Tin  
Vanadium  
Zinc

#### **Air (Organic)**

Dioxins and Furans (PCDD/PCDF) - Air (138)

EX-TM-1605/EX-TM-1606; modified from EPA 1613 AND ENVIRONMENT CANADA, EPS 1/RM/19  
GC-HRMS-EXTRACTION

1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin  
1,2,3,4,6,7,8-Heptachlorodibenzofuran  
1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin  
1,2,3,4,7,8-Hexachlorodibenzofuran  
1,2,3,4,7,8,9-Heptachlorodibenzofuran  
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin  
1,2,3,6,7,8-Hexachlorodibenzofuran  
1,2,3,7,8-Pentachlorodibenzofuran  
1,2,3,7,8-Pentachlorodibenzo-p-dioxin  
1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin  
1,2,3,7,8,9-Hexachlorodibenzofuran  
2,3,4,6,7,8-Hexachlorodibenzofuran  
2,3,4,7,8-Pentachlorodibenzofuran  
2,3,7,8-Tetrachlorodibenzo-p-dioxin  
2,3,7,8-Tetrachlorodibenzofuran  
Heptachlorodibenzo-p-dioxins (Total)  
Heptachlorodibenzofurans (Total)  
Hexachlorodibenzo-p-dioxins (Total)  
Hexachlorodibenzofurans (Total)  
Octachlorodibenzo-p-dioxin  
Octachlorodibenzofuran  
Pentachlorodibenzo-p-dioxins (Total)  
Pentachlorodibenzofurans (Total)  
Tetrachlorodibenzo-p-dioxins (Total)  
Tetrachlorodibenzofurans (Total)

#### **Biological Tissue (Inorganic)**

Metals - Tissue (186)

NA-TP-2003/ISOP 100; modified from EPA 200.3/EPA 200.7  
ICP - DIGESTION

Aluminum  
Beryllium  
Cadmium  
Calcium  
Chromium

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Cobalt  
Copper  
Iron  
Magnesium  
Manganese  
Phosphorus  
Potassium  
Sodium  
Strontium  
Titanium  
Zinc

#### **Oil (Organic)**

Polychlorinated Biphenyls (PCB) - Oil (002)  
MSOP 8; modified from EPA 8082, ASTM D4059  
GC/ECD - EXTRACTION  
Aroclor 1016  
Aroclor 1221  
Aroclor 1232  
Aroclor 1242  
Aroclor 1248  
Aroclor 1254  
Aroclor 1260  
Aroclor 1262  
Aroclor 1268  
Total PCB

#### **Paint**

Lead - Paint (153)  
ISOP 100, ISOP 165; modified from EPA 200.2, EPA 200.7  
ICP - DIGESTION  
Lead

#### **Serum**

Perfluorinated Organics (PFC) - Serum (147)  
EX-TM-1603; modified from ENVIRO. SCI. TECH, 38, 3698-3704  
LC-MS/MS - EXTRACTION  
Perfluorobutane sulfonate  
Perfluorobutanoic acid  
Perfluorodecane sulfonate  
Perfluorodecanoic acid  
Perfluorododecanoic acid  
Perfluoroheptanoic acid  
Perfluorohexane sulfonate  
Perfluorohexanoic acid  
Perfluorononanoic acid  
Perfluorooctane sulfonamide  
Perfluorooctane sulfonate  
Perfluorooctanoic acid  
Perfluoroundecanoic acid

#### **Solids (Inorganic)**

Ammonia - Soil (177)  
ISOP 49/70; modified from CSSS 15.2.1/SM 4500-NH3  
COLORIMETRIC (SATURATED PASTE)  
Ammonia

† "OSDWA" indicates the appendix is used for the analysis of Ontario drinking water samples, which is subject to the rules and related regulations under the Ontario "Safe Drinking Water Act" (2002).

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**Solids (Inorganic)**

Anions - Soil (176)

ISOP 49, NA-TM-1001; modified from CSSS 15.2.1/SM 4110 B  
ION CHROMATOGRAPHY (SATURATED PASTE)

Nitrate

Nitrite

Sulfate

**Solids (Inorganic)**

Barium - Soil (172)

ISOP 158, ISOP 100; modified from SSSA PART 3, 1996, PG 202

ICP - FUSION

Barium

**Solids (Inorganic)**

Barium (Extractable) - Soil (182)

ISOP 164, ISOP 100; modified from BARITE WASTE GUIDELINES

ICP - EXTRACTION

Barium

**Solids (Inorganic)**

Chloride - Saturated Paste, Soil (168)

ISOP 49/ED-TM-1032; modified from CSSS 15.2.1/SM 4500 - CL E

COLORIMETRIC

Chloride

**Solids (Inorganic)**

Conductivity - Soil (156)

ISOP 49/ISOP19; modified from CARTER CSSS 15.2.1, 15.3

SATURATED PASTE, METER

Conductivity

**Solids (Inorganic)**

Conductivity - Soil (157)

ISOP 19; modified from CARTER CSSS 15.3

1:2 EXTRACTION, METER

Conductivity

**Solids (Inorganic)**

Density - Soil (170)

ISOP 114; modified from ASTM D5057

GRAVIMETRIC

Density

**Solids (Inorganic)**

Grain Size - Soil (028)

ISOP 68; modified from ASTM D422-63

SIEVING

Grain Size

**Solids (Inorganic)**

Hexavalent Chromium - Soil (148)

ISOP 108; modified from EPA 3060 A

IC-ALKALINE DIGESTION

Chromium

**Solids (Inorganic)**

Hot Water Soluble Boron - Soil (145)

ISOP144/ISOP100; modified from KEREN 1996 METHODS OF SOIL ANALYSIS

ICP - EXTRACTION

Boron

† "OSDWA" indicates the appendix is used for the analysis of Ontario drinking water samples, which is subject to the rules and related regulations under the Ontario "Safe Drinking Water Act" (2002).

**Solids (Inorganic)**

Mercury - Soil (164)

ISOP165, ISOP 160; modified from EPA 200.2, EPA 245.1

COLD VAPOUR AA - DIGESTION

Mercury

**Solids (Inorganic)**

Metals - Soil (023)

ISOP165/ISOP 96; modified from EPA 200.2/6020

ICP/MS - DIGESTION

Aluminum

Antimony

Arsenic

Barium

Beryllium

Bismuth

Boron

Cadmium

Calcium

Chromium

Cobalt

Copper

Iron

Lead

Lithium

Magnesium

Manganese

Molybdenum

Nickel

Phosphorus

Potassium

Selenium

Silver

Sodium

Strontium

Thallium

Tin

Titanium

Uranium

Vanadium

Zinc

**Solids (Inorganic)**

Oil and Grease - Soil (029)

MSOP176; modified from SM 5520

GRAVIMETRIC - EXTRACTION

Oil and Grease

**Solids (Inorganic)**

Particle Size - Soil (110)

ISOP 162; modified from CARTER CSSS 47.3

PARTICLE SIZE

% Clay

% Sand

% Silt

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**Solids (Inorganic)**

Percent Moisture - Soil (179)

MSOP104; modified from ASTM D2216-80

GRAVIMETRIC

% Moisture

**Solids (Inorganic)**

Percent Saturation - Soil (169)

ISOP 49; modified from CSSS 15.2.1

GRAVIMETRIC

% Saturation

**Solids (Inorganic)**

pH - Soil (099)

ISOP 49/ISOP 18; modified from CARTER CSSS 15.2.1, 16.2

SATURATED PASTE, METER

pH

**Solids (Inorganic)**

pH - Soil (100)

ISOP 18; modified from CARTER CSSS 16.2

1:2 EXTRACTION, METER

pH

**Solids (Inorganic)**

pH (1:2 CaCl<sub>2</sub>) - Soil (163)

ISOP 69; modified from CSSS 16.3

1:2 CaCl<sub>2</sub> EXTRACTION - METER

pH (1:2 CaCl<sub>2</sub>)

**Solids (Inorganic)**

Salinity - Soil (160)

ISOP 49/ISOP 100; modified from CARTER CSSS 15.2.1, EPA 200.7

ICP (SATURATED PASTE)

Calcium

Magnesium

Potassium

Sodium

Sulfur SO<sub>4</sub>

**Solids (Inorganic)**

Sulfate - Solids (173)

ISOP 155; modified from CSA A23.2

IC - DIGESTION

Sulfate

**Solids (Organic)**

Aldehydes - Soil (180)

ED-TM-1110; EPA 8270

GC/MS

Acetaldehyde

Formaldehyde

**Solids (Organic)**

Dioxins, Furans (PCDD/PCDF) - Soil, Sediment (085)

EX-TM-1605/EX-TM-1606; modified from EPA 1613, EPS 1/RM/19

HRGC/HRMS - EXTRACTION

1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin

1,2,3,4,6,7,8-Heptachlorodibenzofuran

1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin

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1,2,3,4,7,8-Hexachlorodibenzofuran  
 1,2,3,4,7,8,9-Heptachlorodibenzofuran  
 1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin  
 1,2,3,6,7,8-Hexachlorodibenzofuran  
 1,2,3,7,8-Pentachlorodibenzofuran  
 1,2,3,7,8-Pentachlorodibenzo-p-dioxin  
 1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin  
 1,2,3,7,8,9-Hexachlorodibenzofuran  
 2,3,4,6,7,8-Hexachlorodibenzofuran  
 2,3,4,7,8-Pentachlorodibenzofuran  
 2,3,7,8-Tetrachlorodibenzo-p-dioxin  
 2,3,7,8-Tetrachlorodibenzofuran  
 Heptachlorodibenzo-p-dioxins (Total)  
 Heptachlorodibenzofurans (Total)  
 Hexachlorodibenzo-p-dioxins (Total)  
 Hexachlorodibenzofurans (Total)  
 Octachlorodibenzo-p-dioxin  
 Octachlorodibenzofuran  
 Pentachlorodibenzo-p-dioxins (Total)  
 Pentachlorodibenzofurans (Total)  
 Tetrachlorodibenzo-p-dioxins (Total)  
 Tetrachlorodibenzofurans (Total)

#### **Solids (Organic)**

Extractable Petroleum Hydrocarbons (EPH) - Soil (109)  
 MSOP 119; modified from BC MELP EPH IN SOLIDS BY GC/FID  
 GC/FID - EXTRACTION  
 EPH 10-19  
 EPH 19-32

#### **Solids (Organic)**

Petroleum Hydrocarbons (PHC) - Soil (154)  
 MSOP 173; CCME  
 GC/MS - HEADSPACE  
 Benzene  
 Ethylbenzene  
 m/p-xylene  
 o-xylene  
 Toluene

#### **Solids (Organic)**

Petroleum Hydrocarbons (PHC) - Soil (155)  
 MSOP 173; CCME  
 GC/FID - HEADSPACE  
 F1: C6-C10  
 VH: C6-C10

#### **Solids (Organic)**

Petroleum Hydrocarbons (PHC) - Soil (158)  
 NA-TM-1100, NA-TP-2100; CCME  
 GC/FID - EXTRACTION TUMBLER  
 F2: C10-C16  
 F3: C16-C34  
 F4: C34-C50

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**Solids (Organic)**

Petroleum Hydrocarbons (PHC) - Soil (171)

NA-TM-1100, NA-TP-2100; CCME  
GRAVIMETRIC - TUMBLER

F4: Gravimetric

**Solids (Organic)**

Phenols - Soil (077)

MSOP70; modified from EPA 8270/3540

GC/MS - EXTRACTION

2-Chlorophenol

2-Methylphenol (o-Cresol)

2-Nitrophenol

2,3-Dichlorophenol

2,3,4-Trichlorophenol

2,3,4,5-Tetrachlorophenol

2,3,4,6 Tetrachlorophenol

2,3,5-Trichlorophenol

2,3,5,6-Tetrachlorophenol

2,3,6-Trichlorophenol

2,4 & 2,5-Dichlorophenol

2,4-Dimethylphenol

2,4-Dinitrophenol

2,4,5-Trichlorophenol

2,4,6-Trichlorophenol

2,6-Dichlorophenol

3-Chlorophenol

3-Methylphenol (m-Cresol)

3,4-Dichlorophenol

3,4,5-Trichlorophenol

3,5-Dichlorophenol

4-Chloro-3-methylphenol

4-Chlorophenol

4-Methylphenol (p-Cresol)

4-Nitrophenol

4,6-Dinitro-2-methylphenol

Pentachlorophenol

Phenol

**Solids (Organic)**

Polychlorinated Biphenyls (PCB) - Soil (097)

MSOP 7; modified from EPA 3550/8082

GC/ECD - EXTRACTION

Aroclor 1016

Aroclor 1221

Aroclor 1232

Aroclor 1242

Aroclor 1248

Aroclor 1254

Aroclor 1260

Aroclor 1262

Aroclor 1268

Total PCB

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**Solids (Organic)**

Polychlorinated Biphenyls (PCB) - Soil, Sediment (088)

EX-TM-1605/EX-TM-1607; modified from EPA 1668A

**HRGC/HRMS - EXTRACTION**

PCB 1  
PCB 100  
PCB 101  
PCB 102  
PCB 103  
PCB 104  
PCB 105  
PCB 106  
PCB 108/86/125  
PCB 11  
PCB 110  
PCB 111/117  
PCB 112  
PCB 113  
PCB 114  
PCB 115  
PCB 116  
PCB 118  
PCB 12  
PCB 120  
PCB 122  
PCB 123/107/109  
PCB 124  
PCB 126  
PCB 127  
PCB 128/162  
PCB 13  
PCB 130  
PCB 131/142/133  
PCB 132  
PCB 134  
PCB 135  
PCB 136  
PCB 137  
PCB 138  
PCB 139/143  
PCB 14  
PCB 140  
PCB 141  
PCB 144  
PCB 145  
PCB 146  
PCB 147/149  
PCB 148  
PCB 15  
PCB 150  
PCB 151  
PCB 152  
PCB 153/168

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PCB 154  
PCB 155  
PCB 156  
PCB 157  
PCB 158/129  
PCB 159  
PCB 16  
PCB 160/163  
PCB 161  
PCB 164  
PCB 165  
PCB 166  
PCB 167  
PCB 169  
PCB 17  
PCB 170  
PCB 171  
PCB 172  
PCB 173  
PCB 174  
PCB 175/182  
PCB 176  
PCB 177  
PCB 178  
PCB 179  
PCB 18  
PCB 180  
PCB 181  
PCB 183  
PCB 184  
PCB 185  
PCB 186  
PCB 187  
PCB 188  
PCB 189  
PCB 19  
PCB 190  
PCB 191  
PCB 192  
PCB 193  
PCB 194  
PCB 195  
PCB 197  
PCB 198  
PCB 199  
PCB 2  
PCB 200  
PCB 201/204  
PCB 202  
PCB 203/196  
PCB 205  
PCB 206  
PCB 208

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PCB 209  
PCB 21/20/23  
PCB 22  
PCB 23  
PCB 24  
PCB 25  
PCB 26  
PCB 27  
PCB 28  
PCB 29  
PCB 3  
PCB 30  
PCB 31  
PCB 32  
PCB 34  
PCB 35  
PCB 36  
PCB 37  
PCB 38  
PCB 39  
PCB 4/10  
PCB 40/68  
PCB 41  
PCB 43/52  
PCB 44  
PCB 45  
PCB 46  
PCB 47  
PCB 48/49  
PCB 5  
PCB 50  
PCB 51  
PCB 53  
PCB 54  
PCB 55  
PCB 56  
PCB 57  
PCB 58/67  
PCB 59/42  
PCB 6  
PCB 60  
PCB 61  
PCB 63/76  
PCB 64  
PCB 66  
PCB 69  
PCB 7  
PCB 70  
PCB 71  
PCB 72  
PCB 74  
PCB 75/65/62  
PCB 77

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PCB 78  
PCB 79  
PCB 8  
PCB 80  
PCB 81  
PCB 82  
PCB 83/119  
PCB 84/89  
PCB 85  
PCB 87  
PCB 88/121  
PCB 9  
PCB 90/101  
PCB 91  
PCB 92  
PCB 93  
PCB 94  
PCB 95  
PCB 96  
PCB 97  
PCB 98  
PCB 99

**Solids (Organic)**

Polycyclic Aromatic Hydrocarbons (PAH) - Soil (064)

MSOP 143; modified from EPA 8270/3540

GC/MS - EXTRACTION

1,3-Dimethylnaphthalene  
1,3-Methylnaphthalene  
2-Methylantracene  
2-Methylnaphthalene  
3-Methylcholanthrene  
Acenaphthene  
Acenaphthylene  
Anthracene  
Benzo (a) anthracene  
Benzo (a) pyrene  
Benzo (b,i) fluoranthene  
Benzo (q,h,i) perylene  
Benzo (k) fluoranthene  
Carbazole  
Chrysene  
Dibenzo (a,h) anthracene  
Dibenzofuran  
Fluoranthene  
Fluorene  
Indeno (1,2,3 - cd) pyrene  
Naphthalene  
Phenanthrene  
Pyrene  
Quinoline

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## Solids (Organic)

Volatile Organic Compounds (VOC) - Soil (167)

MSOP 50; modified from EPA 5021/8260

GC/MS - HEADSPACE/EXTRACTION

1,1-Dichloroethane  
1,1-dichloroethylene  
1,1-Dichloropropene  
1,1,1-Trichloroethane  
1,1,1,2-Tetrachloroethane  
1,1,2-Trichloroethane  
1,1,2,2-Tetrachloroethane  
1,2-Dibromo-3-chloropropane  
1,2-dichlorobenzene  
1,2-dichloroethane  
1,2-Dichloropropane  
1,2,3-Trichlorobenzene  
1,2,3-Trichloropropane  
1,2,4-Trichlorobenzene  
1,2,4-Trimethylbenzene  
1,3-Dichlorobenzene  
1,3-Dichloropropane  
1,3,5-Trimethylbenzene  
1,4-dichlorobenzene  
2-Chlorotoluene  
2-Hexanone  
2,2-Dichloropropane  
4-Chlorotoluene  
Acetone (2-Propanone)  
Acrylonitrile  
Benzene  
Bromobenzene  
Bromochloromethane  
Bromodichloromethane  
Bromoform  
Bromomethane  
Carbon Disulphide  
Carbon Tetrachloride  
Chlorobenzene  
Chlorodibromomethane  
Chloroethane  
Chloroform  
Chloromethane  
cis-1,3-Dichloropropene  
cis-1,4-Dichloro-2-Butene  
Dibromomethane  
Dichlorodifluoromethane  
Dichloromethane  
Ethyl Alcohol  
Ethyl Methacrylate  
Ethylbenzene  
Ethylene Dibromide  
Hexachlorobutadiene  
Isopropylbenzene

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m/p-xylene  
Methyl Ethyl Ketone  
Methyl Iodide  
Methyl isobutyl Ketone  
n-butylbenzene  
n-propylbenzene  
o-xylene  
p-Isopropyltoluene  
sec-butylbenzene  
Styrene  
tert-butylbenzene  
Tetrachloroethylene  
Toluene  
trans-1,2-Dichloroethylene  
trans-1,3-Dichloropropene  
Trans-1,4-Dichloro-2-Butene  
Trichloroethylene  
Trichlorofluoromethane  
Vinyl Chloride

**Tissue (Inorganic)**

Mercury - Biological (054)

NA-TP-2003, ISOP151, ISOP 160; modified from EPA 200.3, 245.1, 245.7

COLD VAPOR AA - DIGESTION

Mercury

**Tissue (Inorganic)**

Metals - Biological (060)

NA-TP-2003, ISOP 96; modified from EPA 200.3, 6020

ICP/MS - DIGEST

Aluminum  
Antimony  
Arsenic  
Barium  
Beryllium  
Cadmium  
Calcium  
Chromium  
Cobalt  
Copper  
Lead  
Lithium  
Magnesium  
Manganese  
Molybdenum  
Nickel  
Selenium  
Silver  
Strontium  
Thallium  
Uranium  
Vanadium  
Zinc

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**Tissue (Organic)**

Dioxins/Furans (PCDD/PCDF) - Biological (086)

EX-TM-1605/EX-TM-1606; modified from EPA 1613, EPS 1/RM/19

**HRGC/HRMS - EXTRACTION**

1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin

1,2,3,4,6,7,8-Heptachlorodibenzofuran

1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin

1,2,3,4,7,8-Hexachlorodibenzofuran

1,2,3,4,7,8,9-Heptachlorodibenzofuran

1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin

1,2,3,6,7,8-Hexachlorodibenzofuran

1,2,3,7,8-Pentachlorodibenzofuran

1,2,3,7,8-Pentachlorodibenzo-p-dioxin

1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin

1,2,3,7,8,9-Hexachlorodibenzofuran

2,3,4,6,7,8-Hexachlorodibenzofuran

2,3,4,7,8-Pentachlorodibenzofuran

2,3,7,8-Tetrachlorodibenzo-p-dioxin

2,3,7,8-Tetrachlorodibenzofuran

Heptachlorodibenzo-p-dioxins (Total)

Heptachlorodibenzofurans (Total)

Hexachlorodibenzo-p-dioxins (Total)

Hexachlorodibenzofurans (Total)

Octachlorodibenzo-p-dioxin

Octachlorodibenzofuran

Pentachlorodibenzo-p-dioxins (Total)

Pentachlorodibenzofurans (Total)

Tetrachlorodibenzo-p-dioxins (Total)

Tetrachlorodibenzofurans (Total)

**Tissue (Organic)**

Polychlorinated Biphenyls (PCB) - Biological (089)

EX-TM-1605/EX-TM-1607; modified from EPA 1668A

**HRGC/HRMS - EXTRACTION**

PCB 1

PCB 100

PCB 102

PCB 103

PCB 104

PCB 105

PCB 106

PCB 108/86/125

PCB 11

PCB 110

PCB 111/117

PCB 112

PCB 113

PCB 114

PCB 115

PCB 116

PCB 118

PCB 12

PCB 120

PCB 122

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PCB 123/107/109  
PCB 124  
PCB 126  
PCB 127  
PCB 128/162  
PCB 13  
PCB 130  
PCB 131/142/133  
PCB 132  
PCB 134  
PCB 135  
PCB 136  
PCB 137  
PCB 138  
PCB 139/143  
PCB 14  
PCB 140  
PCB 141  
PCB 144  
PCB 145  
PCB 146  
PCB 147/149  
PCB 148  
PCB 15  
PCB 150  
PCB 151  
PCB 152  
PCB 153/168  
PCB 154  
PCB 155  
PCB 156  
PCB 157  
PCB 159  
PCB 16  
PCB 160/163  
PCB 161  
PCB 164  
PCB 165  
PCB 166  
PCB 167  
PCB 169  
PCB 17  
PCB 170  
PCB 171  
PCB 172  
PCB 173  
PCB 174  
PCB 175/182  
PCB 176  
PCB 177  
PCB 178  
PCB 179  
PCB 18

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PCB 180  
PCB 181  
PCB 183  
PCB 184  
PCB 185  
PCB 186  
PCB 187  
PCB 188  
PCB 189  
PCB 19  
PCB 190  
PCB 191  
PCB 192  
PCB 193  
PCB 194  
PCB 195  
PCB 197  
PCB 198  
PCB 199  
PCB 2  
PCB 200  
PCB 201/204  
PCB 202  
PCB 205  
PCB 206  
PCB 208  
PCB 209  
PCB 21/20/23  
PCB 22  
PCB 23  
PCB 24  
PCB 25  
PCB 26  
PCB 27  
PCB 28  
PCB 29  
PCB 3  
PCB 30  
PCB 31  
PCB 32  
PCB 34  
PCB 35  
PCB 36  
PCB 37  
PCB 38  
PCB 39  
PCB 4/10  
PCB 40/68  
PCB 41  
PCB 43/52  
PCB 44  
PCB 45  
PCB 46

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PCB 47  
PCB 48/49  
PCB 5  
PCB 50  
PCB 51  
PCB 52  
PCB 53  
PCB 54  
PCB 55  
PCB 56  
PCB 57  
PCB 58/67  
PCB 59/42  
PCB 6  
PCB 60  
PCB 61  
PCB 63/76  
PCB 64  
PCB 66  
PCB 69  
PCB 7  
PCB 70  
PCB 71  
PCB 72  
PCB 73  
PCB 74  
PCB 75/65/62  
PCB 77  
PCB 78  
PCB 79  
PCB 8  
PCB 80  
PCB 81  
PCB 82  
PCB 83/119  
PCB 84/89  
PCB 85  
PCB 87  
PCB 88/121  
PCB 9  
PCB 90/101  
PCB 91  
PCB 92  
PCB 93  
PCB 94  
PCB 95  
PCB 96  
PCB 97  
PCB 98  
PCB 99

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**Waste**

BTEX - TCLP Leachate - Waste (135)

ISOP74/MSOP173, NA-TM-1103; modified from EPA 1311, EPA 8260 B

GC/MS - TCLP

Benzene

Ethylbenzene

m/p - xylene

o-xylene

Toluene

**Waste**

Flashpoint - Waste (055)

ED-TM-1012; modified from ASTM 93-D

PENSKE-MARTEN CLOSED CUP

Flashpoint

**Waste**

Metals - TCLP Leachate - Waste (141)

ISOP 74, ISOP 96; modified from EPA 1311, EPA 6020

ICP/MS - TCLP

Antimony

Arsenic

Barium

Beryllium

Boron

Cadmium

Chromium

Cobalt

Copper

Iron

Lead

Nickel

Selenium

Silver

Thallium

Uranium

Vanadium

Zinc

Zirconium

**Waste (Inorganic)**

Mercury - TCLP - Waste (162)

ISOP 74/ISOP 151/160; modified from EPA 1311, 245.1, 245.7

COLD VAPOUR AA - DIGESTION - TCLP

Mercury

**Waste (Inorganic)**

Specific Gravity - Waste (174)

ISOP 114; modified from SM 2710 F

GRAVIMETRIC

Specific Gravity

**Water (Inorganic)**

Alkalinity - Water (004)

ED-TM-1026; modified from SM 2320 B

TITRIMETRIC

Alkalinity (pH 4.5)

Alkalinity (pH 8.3)

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**Water (Inorganic)**

Ammonia - Water (178)

ED-TM-1016; modified from SM 4500 NH3

COLORIMETRIC

Ammonia

**Water (Inorganic)**

Anions - Water (005)

NATM 1001; modified from SM 4110 B

ION CHROMATOGRAPHY

Bromide

Chloride

Fluoride

Nitrate

Nitrite

Sulfate

**Water (Inorganic)**

Biochemical Oxygen Demand (BOD) - Water (013)

ED-TM-1007/ISOP135; modified from SM 5210B

D.O. METER

BOD (5 day)

BOD<sub>u</sub> (ultimate)

CBOD (5 day)

**Water (Inorganic)**

Carbon - Water (118)

ED-TM-1002; modified from SM 5310 B

IR - COMBUSTION

Inorganic Carbon

Organic Carbon

Total Carbon (TC)

**Water (Inorganic)**

Chemical Oxygen Demand (COD) - Water (051)

ED-TM-1009; modified from SM 5220 D

COLORIMETRIC - DIGESTION

COD

**Water (Inorganic)**

Chlorine - Water (123)

ISOP134; modified from SM 4500 CL-A,F,G

COLORIMETRIC

Free Chlorine

Total Chlorine

**Water (Inorganic)**

Colour - Water (152)

ED-TM-1038; modified from SM 2120 A, C

SPECTROPHOTOMETRIC

True Colour

**Water (Inorganic)**

Conductivity - Water (006)

ED-TM-1026; modified from SM 2510 B

CONDUCTIVITY METER

Conductivity (25°C)

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**Water (Inorganic)**

Disinfection By-Products - Water (056)  
ED-TM-1006; modified from EPA 300.B  
ION CHROMATOGRAPHY  
Bromate  
Chlorate  
Chlorite

**Water (Inorganic)**

Dissolved Metals - Water (007)  
ISOP 96; modified from EPA 6020  
ICP/MS  
Aluminum  
Antimony  
Arsenic  
Barium  
Beryllium  
Bismuth  
Boron  
Cadmium  
Chromium  
Cobalt  
Copper  
Lead  
Lithium  
Molybdenum  
Nickel  
Selenium  
Silver  
Strontium  
Thallium  
Tin  
Titanium  
Uranium  
Vanadium  
Zinc

**Water (Inorganic)**

Dissolved Metals - Water (083)  
ISOP 100, NA-TP-2002; modified from SM 3120B  
ICP  
Calcium  
Iron  
Magnesium  
Manganese  
Potassium  
Silicon  
Sodium  
Sulfur

**Water (Inorganic)**

Hexavalent Chromium- Water (035)  
ISOP 108; modified from SM 3500-CR,C  
ION CHROMATOGRAPHY  
Chromium (Hexavalent)

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**Water (Inorganic)**

Mercury - Water (149)

ISOP 151, ISOP 160; modified from EPA 245.7, EPA 245.1

COLD VAPOUR AA, COLD OXIDATION

Mercury

**Water (Inorganic)**

Metals (Ultra Trace) - Water (061)

ISOP 96, NA-TP-2002; modified from EPA 6020

ICP/MS

Calcium

Dissolved Aluminum

Dissolved Barium

Dissolved Beryllium

Dissolved Boron

Dissolved Cadmium

Dissolved Chromium

Dissolved Cobalt

Dissolved Copper

Dissolved Lead

Dissolved Manganese

Dissolved Molybdenum

Dissolved Nickel

Dissolved Silver

Dissolved Thallium

Dissolved Tin

Dissolved Vanadium

Dissolved Zinc

Magnesium

Potassium

Sodium

Strontium

Total Antimony

Total Arsenic

Total Selenium

Uranium

**Water (Inorganic)**

Microtox - Water (161)

ISOP 157; modified from WCMUC (1991)

BIOLUMINESCENCE

Microtox IC50 (15 min)

**Water (Inorganic)**

Nitrate/Nitrite - Water (057)

ISOP 80; modified from SM 4500-NO<sub>2</sub>,B / SM 4500-NO<sub>3</sub>,H

COLORIMETRIC

Nitrate plus Nitrite

Nitrite

**Water (Inorganic)**

Oil and Grease - Water (038)

MSOP177; modified from SM 5520 A,B,F

GRAVIMETRIC

Total Oil and Grease

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**Water (Inorganic)**

Oil and Grease - Water (159)  
MSOP178; modified from SM 5520 C, F  
INFRA-RED  
Hydrocarbon Oil and Grease  
Total Oil and Grease

**Water (Inorganic)**

pH - Water (015)  
ED-TM-1026; modified from SM 4500-A,B  
pH METER  
pH

**Water (Inorganic)**

Phenols - Water (146)  
ISOP149; modified from ALBERTA ENVIRONMENT 154  
COLORIMETRIC  
Total Phenolics

**Water (Inorganic)**

Phosphate - Water (084)  
ED-TM-1031; modified from SM 4500-P  
COLORIMETRIC  
Phosphate

**Water (Inorganic)**

Phosphates (Low) - Water (183)  
ISOP 80; modified from SM 4500-P  
COLORIMETRIC - TECHNICON  
Phosphate

**Water (Inorganic)**

Phosphorus - Water (011)  
ED-TM-1031; modified from SM 4500-P,B,E  
COLORIMETRIC - DIGESTION  
Total Dissolved Phosphorus  
Total Phosphorus

**Water (Inorganic)**

Phosphorus - Water (119)  
ED-TM-1031; modified from SM 4500-A B, E  
COLORIMETRIC  
Inorganic Phosphorus

**Water (Inorganic)**

Phosphorus - Water (184)  
ISOP 85; modified from SM 4500, P, B, E  
COLORIMETRIC - TECHNICON  
Total Dissolved Phosphorus  
Total Phosphorus

**Water (Inorganic)**

Solids - Water (012)  
ED-TM-1005; modified from SM 2540 A,B,C,D,E  
GRAVIMETRIC  
Fixed Suspended Solids  
Total Dissolved Solids  
Total Suspended Solids  
Volatile Suspended Solids

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**Water (Inorganic)**

Sulfide - Water (033)

ED-TM-1001; modified from SM 4500-S2 A, D,E

COLORIMETRIC

Sulfide

**Water (Inorganic)**

Total Kjeldahl Nitrogen (TKN) - Water (010)

ED-TM-1017; modified from AB ENVIR. 235

COLORIMETRIC - DIGESTION

Dissolved Kjeldahl Nitrogen

Total Kjeldahl Nitrogen

**Water (Inorganic)**

Total Metals - Water (081)

NA-TP-2001/ISOP 100; modified from APHA 3030 E/3120 B

ICP - DIGESTION

Calcium

Iron

Magnesium

Manganese

Potassium

Silicon

Sodium

Sulfur

**Water (Inorganic)**

Total Metals - Water (082)

NA-TP-2001, ISOP 96; modified from EPA 6020, APHA 3030 E

ICP/MS - DIGESTION

Aluminum

Antimony

Arsenic

Barium

Beryllium

Bismuth

Boron

Cadmium

Chromium

Cobalt

Copper

Lead

Lithium

Molybdenum

Nickel

Selenium

Silver

Strontium

Thallium

Tin

Titanium

Uranium

Vanadium

Zinc

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**Water (Inorganic)**

Total Nitrogen - Water (195)  
ED-TM-1002; modified from EN12260  
IR - COMBUSTION  
Total Nitrogen

**Water (Inorganic)**

Turbidity - Water (078)  
ED-TM-1011; modified from SM 2130 A,B  
TURBIDIMETRIC  
Turbidity

**Water (Organic)**

Alkylated & Nitro PAHs - Water (181)  
ED-TM-1135; modified from EPA 3570/8270  
GC/MS  
Acridine  
C2 Alkyl subst'd Carbazoles  
C2 Alkyl subst'd Quinolines  
C3 Alkyl subst'd Quinolines  
Carbazole  
Methyl Acridine  
Methyl Carbazoles  
Methyl Quinolines  
Phenanthridine  
Quinoline

**Water (Organic)**

Base Neutral Extractables - Water (117)  
MSOP 161; modified from EPA 3510/8270  
GC/MS - EXTRACTION  
1,2,3-Trichlorobenzene  
1,2,4-Trichlorobenzene  
2-Chloronaphthalene  
2,4-Dinitrotoluene  
2,6-Dinitrotoluene  
Hexachlorobenzene  
Hexachlorobutadiene  
Hexachlorocyclopentadiene  
Hexachloroethane  
Pentachlorobenzene

**Water (Organic)**

Chlorophenols - Water (019)  
MSOP 42; modified from EPA 1653 AND ALBERTA ENVIRONMENT 130.0  
GC/MS - EXTRACTION  
2-Chlorophenol  
2-Chlorosyringaldehyde  
2,4,5-Trichlorophenol  
2,6-Dichlorophenol  
2,6-Dichlorosyringaldehyde  
3,4-Dichlorocatechol  
3,4-Dichloroquaiacol  
3,4,5-Trichlorocatechol  
3,4,5-Trichloroquaiacol  
3,4,5-Trichloroveratrole  
3,4,6-Trichlorocatechol

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3,4,6-Trichloroquaiacol  
 3,5-Dichlorocatechol  
 3,6-Dichlorocatechol  
 4-Chlorocatechol  
 4-Chloroquaiacol  
 4-Chlorophenol  
 4,5-Dichlorocatechol  
 4,5-Dichloroquaiacol  
 4,5-Dichloroveratrole  
 4,5,6-Trichloroquaiacol  
 4,5,6-Trichlorosyringol  
 4,6-Dichloroquaiacol  
 5-Chlorovanillin  
 5,6-Dichlorovanillin  
 6-Chlorovanillin  
 Tetrachlorocatechol  
 Tetrachloroquaiacol  
 Tetrachloroveratrole  
 Trichlorotrimethoxybenzene

#### **Water (Organic)**

Dioxins and Furans (PCDD/PCDF) - Water (049)  
 EX-TM-1604/EX-TM-1606; modified from EPA 1613, EPS 1/RM/19  
 GC/HRMS - EXTRACTION

1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin  
 1,2,3,4,6,7,8-Heptachlorodibenzofuran  
 1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin  
 1,2,3,4,7,8-Hexachlorodibenzofuran  
 1,2,3,4,7,8,9-Heptachlorodibenzofuran  
 1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin  
 1,2,3,6,7,8-Hexachlorodibenzofuran  
 1,2,3,7,8-Pentachlorodibenzo-p-dioxin  
 1,2,3,7,8-Pentachlorodibenzofuran  
 1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin  
 1,2,3,7,8,9-Hexachlorodibenzofuran  
 2,3,4,6,7,8-Hexachlorodibenzofuran  
 2,3,4,7,8-Pentachlorodibenzofuran  
 2,3,7,8-Tetrachlorodibenzo-p-dioxin  
 2,3,7,8-Tetrachlorodibenzofuran  
 Heptachlorodibenzo-p-dioxins (Total)  
 Heptachlorodibenzofurans (Total)  
 Hexachlorodibenzo-p-dioxins (Total)  
 Hexachlorodibenzofurans (Total)  
 Octachlorodibenzo-p-dioxin  
 Octachlorodibenzofuran  
 Pentachlorodibenzo-p-dioxins (Total)  
 Pentachlorodibenzofurans (Total)  
 Tetrachlorodibenzo-p-dioxins (Total)  
 Tetrachlorodibenzofurans (Total)

#### **Water (Organic)**

Extractable Petroleum Hydrocarbons (EPH) - Water (108)  
 MSOP 125; modified from BC MELP EPH IN WATER BY GC/FID  
 GC/FID - EXTRACTION  
 EPH 10-19

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**Water (Organic)**

Formaldehyde - Water (116)

MSOP47; modified from ENVIRONMENTAL SCIENCE AND TECHNOLOGY, 1989, 23:838-847

GC/MS - EXTRACTION

Formaldehyde

**Water (Organic)**

Low Level PAHs and Alkylated PAHs - Water (185)

EX-TM-1600; modified from EPA 3510/8270

GC/MS

1-Methylnaphthalene

2-Methylnaphthalene

Acenaphthene

Acenaphthylene

Acridine

Anthracene

Benzo (a) anthracene

Benzo (a) pyrene

Benzo(b&i)fluoranthene

Benzo(e)pyrene

Benzo (g,h,i) perylene

Benzo (k) fluoranthene

Biphenyl

C1 Acenaphthenes

C1 Benz(a)Anthracenes/Chrysenes

C1 Benzofluoranthenes/Benzopyrenes

C1 Biphenyls

C1 Dibenzothiophenes

C1 Fluoranthenes/Pyrenes

C1 Fluorenes

C1 Phenanthrenes/Anthracenes

C2 Benzofluoranthenes/Benzopyrenes

C2 Biphenyls

C2 Bnz(a)Anthracenes/Chrysenes

C2 Dibenzothiophenes

C2 Fluoranthenes/Pyrenes

C2 Fluorenes

C2 Naphthalenes

C2 Phenanthrenes/Anthracenes

C3 Benzanthracenes/Chrysenes

C3 Dibenzothiophenes

C3 Naphthalenes

C3 Phenanthrenes/Anthracenes

C4 Benzanthracenes/Chrysenes

C4 Dibenzothiophenes

C4 Naphthalenes

C4 Phenanthrenes/Anthracenes

Chrysene

Dibenzo (a,h) anthracene

Dibenzothiophene

Fluoranthene

Fluorene

Indeno (1,2,3 - cd) pyrene

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Naphthalene  
Perylene  
Phenanthrene  
Pyrene  
Quinoline  
Retene

**Water (Organic)**

Petroleum Hydrocarbons (PHC) - Water (075)  
NA-TM-1104; modified from EPA 3510/8015  
GC/FID - EXTRACTION  
F2: C10-C16  
F3: C16-C34  
F4: C34-C50

**Water (Organic)**

Petroleum Hydrocarbons (PHC) - Water (165)  
NA-TM-1103; modified from EPA 5021/8260  
GC/FID - HEADSPACE  
F1: C6-C10  
VH: C6-C10

**Water (Organic)**

Phenols - Water (076)  
MSOP71; modified from EPA 8270/3510  
GC/MS - EXTRACTION  
2-Chlorophenol  
2-Methylphenol (o-Cresol)  
2-Nitrophenol  
2,3-Dichlorophenol  
2,3,4-Trichlorophenol  
2,3,4,5-Tetrachlorophenol  
2,3,4,6-tetrachlorophenol  
2,3,5-Trichlorophenol  
2,3,5,6-Tetrachlorophenol  
2,3,6-Trichlorophenol  
2,4 & 2,5-Dichlorophenol  
2,4-Dimethylphenol  
2,4-Dinitrophenol  
2,4,5-Trichlorophenol  
2,4,6-trichlorophenol  
2,6-Dichlorophenol  
3-Chlorophenol  
3-Methylphenol (m-Cresol)  
3,4-Dichlorophenol  
3,4,5-Trichlorophenol  
3,5-Dichlorophenol  
4-Chloro-3-methylphenol  
4-Chlorophenol  
4-Methylphenol (p-Cresol)  
4-Nitrophenol  
4,6-Dinitro-2-methylphenol  
Pentachlorophenol  
Phenol

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**Water (Organic)**

Polychlorinated Biphenyls (PCB) - Water (087)

EX-TM-1604/EX-TM-1607; modified from EPA 1668 A

## HRGC/HRMS - EXTRACTION

PCB 1  
PCB 100  
PCB 102  
PCB 103  
PCB 104  
PCB 105  
PCB 106  
PCB 108/86/125  
PCB 11  
PCB 110  
PCB 111/117  
PCB 112  
PCB 113  
PCB 114  
PCB 115  
PCB 116  
PCB 118  
PCB 12  
PCB 120  
PCB 122  
PCB 123/107/109  
PCB 124  
PCB 126  
PCB 127  
PCB 128/162  
PCB 13  
PCB 130  
PCB 131/142/133  
PCB 132  
PCB 134  
PCB 135  
PCB 136  
PCB 137  
PCB 138  
PCB 139/143  
PCB 14  
PCB 140  
PCB 141  
PCB 144  
PCB 145  
PCB 146  
PCB 147/149  
PCB 148  
PCB 15  
PCB 150  
PCB 151  
PCB 152  
PCB 153/168  
PCB 154

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PCB 155  
PCB 156  
PCB 157  
PCB 158/129  
PCB 159  
PCB 16  
PCB 160/163  
PCB 161  
PCB 164  
PCB 165  
PCB 166  
PCB 167  
PCB 168  
PCB 169  
PCB 17  
PCB 170  
PCB 171  
PCB 172  
PCB 173  
PCB 174  
PCB 175/182  
PCB 176  
PCB 177  
PCB 178  
PCB 179  
PCB 18  
PCB 180  
PCB 181  
PCB 183  
PCB 184  
PCB 185  
PCB 186  
PCB 187  
PCB 188  
PCB 189  
PCB 19  
PCB 190  
PCB 191  
PCB 192  
PCB 193  
PCB 194  
PCB 195  
PCB 197  
PCB 198  
PCB 199  
PCB 2  
PCB 200  
PCB 201/204  
PCB 202  
PCB 203/196  
PCB 205  
PCB 206  
PCB 207

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PCB 208  
PCB 209  
PCB 21/20/23  
PCB 22  
PCB 23  
PCB 24  
PCB 25  
PCB 26  
PCB 27  
PCB 28  
PCB 29  
PCB 3  
PCB 30  
PCB 31  
PCB 32  
PCB 34  
PCB 35  
PCB 36  
PCB 37  
PCB 38  
PCB 39  
PCB 4/10  
PCB 40/68  
PCB 41  
PCB 43/52  
PCB 44  
PCB 45  
PCB 46  
PCB 47  
PCB 48/49  
PCB 5  
PCB 50  
PCB 51  
PCB 53  
PCB 54  
PCB 55  
PCB 56  
PCB 57  
PCB 58/67  
PCB 59/42  
PCB 6  
PCB 60  
PCB 61  
PCB 63/76  
PCB 64  
PCB 66  
PCB 69  
PCB 7  
PCB 70  
PCB 71  
PCB 72  
PCB 73  
PCB 74

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PCB 75/65/62  
PCB 77  
PCB 78  
PCB 79  
PCB 8  
PCB 80  
PCB 81  
PCB 82  
PCB 83/119  
PCB 84/89  
PCB 85  
PCB 87  
PCB 88/121  
PCB 9  
PCB 90/101  
PCB 91  
PCB 92  
PCB 93  
PCB 94  
PCB 95  
PCB 96  
PCB 97  
PCB 98  
PCB 99

**Water (Organic)**

Polychlorinated Biphenyls (PCB) - Water (096)

MSOP4; modified from EPA 3510/8082

GC/ECD - EXTRACTION

Aroclor 1016  
Aroclor 1221  
Aroclor 1232  
Aroclor 1242  
Aroclor 1248  
Aroclor 1254  
Aroclor 1260  
Aroclor 1262  
Aroclor 1268  
Total PCB

**Water (Organic)**

Polycyclic Aromatic Hydrocarbons (PAH) - Water (003)

MSOP 5; modified from EPA 8270/3510

GC/MS - EXTRACTION

1-Methylnaphthalene  
1,3-Dimethylnaphthalene  
2-Methylantracene  
2-Methylnaphthalene  
3-Methylcholanthrene  
Acenaphthene  
Acenaphthylene  
Anthracene  
Benzo (a) anthracene  
Benzo (a) pyrene  
Benzo(b&i)fluoranthene

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Benzo (g,h,i) perylene  
Benzo (k) fluoranthene  
Carbazole  
Chrysene  
Dibenzo (a,h) anthracene  
Dibenzofuran  
Fluoranthene  
Fluorene  
Indeno (1,2,3 - cd) pyrene  
Naphthalene  
Phenanthrene  
Pyrene  
Quinoline

**Water (Organic)**

Resin and Fatty Acids - Water (020)

MSOP 26; modified from ALBERTA ENVIRONMENT 129.0

GC/MS - EXTRACTION

12-Chlorodehydroabietic Acid  
12,14-Dichlorodehydroabietic Acid  
14-Chlorodehydroabietic Acid  
9,10-Dichlorostearic Acid  
Abietic Acid  
Arachidic Acid  
Dehydroabietic Acid  
Isopimaric Acid  
Levopimaric Acid  
Linoleic Acid  
Linolenic Acid  
Myristic Acid  
Neoabietic Acid  
Oleic Acid  
Palmitic Acid  
Palustric Acid  
Pimaric Acid  
Sandaracopimaric Acid  
Stearic Acid

**Water (Organic)**

Resin and Fatty Acids - Water (132)

ED-TM-1106; modified from ALBERTA ENVIRONMENT 129.0

GC/MS - EXTRACTION (RFA-Low ED)

12-Chlorodehydroabietic acid  
12,14-Dichlorodehydroabietic acid  
14-Chlorodehydroabietic acid  
9,10-Dichlorostearic acid  
Abietic acid  
Arachidic acid  
Dehydroabietic Acid  
Isopimaric acid  
Levopimaric acid  
Linoleic Acid  
Linolenic Acid  
Myristic acid  
Neoabietic acid

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Oleic Acid  
Palmitic Acid  
Palustric acid  
Pimaric acid  
Sandaracopimaric acid  
Stearic Acid

**Water (Organic)**

Volatile Organic Compounds (VOC) - Water (166)

MSOP 50; modified from EPA 5021/8260

GC/MS - HEADSPACE

1,1-Dichloroethane  
1,1-dichloroethylene  
1,1,1-Trichloroethane  
1,1,2-Trichloroethane  
1,1,2,2-Tetrachloroethane  
1,2-dichlorobenzene  
1,2-dichloroethane  
1,2-Dichloropropane  
1,2,3-Trichloropropane  
1,3-Dichlorobenzene  
1,4-dichlorobenzene  
2-Hexanone  
Acetone (2-Propanone)  
Acrylonitrile  
Benzene  
Bromodichloromethane  
Bromoform  
Bromomethane  
Carbon Disulphide  
Carbon Tetrachloride  
Chlorobenzene  
Chlorodibromomethane  
Chloroethane  
Chloroform  
Chloromethane  
cis-1,3-Dichloropropene  
cis-1,4-Dichloro-2-Butene  
Dibromomethane  
Dichlorodifluoromethane  
Dichloromethane  
Ethyl Alcohol  
Ethyl Methacrylate  
Ethylbenzene  
Ethylene Dibromide  
m/p-xylene  
Methyl Ethyl Ketone  
Methyl Iodide  
Methyl isobutyl Ketone  
o-xylene  
Styrene  
Tetrachloroethylene  
Toluene  
trans-1,2-Dichloroethylene

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trans-1,3-Dichloropropene  
Trans-1,4-Dichloro-2-Butene  
Trichloroethylene  
Trichlorofluoromethane  
Vinyl Chloride

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# CALA

Canadian Association for  
Laboratory Accreditation Inc.

## CALA Directory of Laboratories

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**Membership Number:** 3525

**Laboratory Name:** Nautilus Environmental Inc.

**Parent Institution:**

**Address:** 8664 Commerce Court Burnaby BC V5A 4N7

**Contact:** Ms. Julianna Kalocai

**Phone:** (604) 420-8773

**Fax:** (604) 357-1361

**Email:** julianna@nautilusenvironmental.com

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**Standard:** Conforms with requirements of ISO/IEC 17025

**Clients Served:** All Interested Parties

**Revised On:** September 13, 2011

**Valid To:** March 13, 2014

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### Scope of Accreditation

#### Water (Toxicology)

Ceriodaphnia dubia - Water (003)

209; EPS 1/RM/21

SURVIVAL AND REPRODUCTION

Ceriodaphnia dubia (7d)

#### Water (Toxicology)

Daphnia magna - Water (002)

205; EPS 1/RM/11, EPS 1/RM/14

ACUTE LETHALITY (SURVIVAL)

Daphnia LC50 (48 h)

#### Water (Toxicology)

Fathead Minnow - Water (007)

220; EPS 1/RM/22

SURVIVAL AND GROWTH

Fathead Minnow (7d)

#### Water (Toxicology)

Lemna minor - Water (005)

215; EPS 1/RM/37

GROWTH INHIBITION

Lemna minor (7d)

#### Water (Toxicology)

Pseudokirchneriella subcapitata - Water (006)

213; EPS 1/RM/25

GROWTH INHIBITION

Pseudokirchneriella subcapitata (72h)

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**Water (Toxicology)**

Rainbow Trout - Water (001)

201; EPS 1/RM/9, EPS 1/RM/13

ACUTE LETHALITY (SURVIVAL)

Trout LC50 (96 h)

**Water (Toxicology)**

Salmonid - Water (004)

203; EPS 1/RM/28

EARLY LIFE STAGE

Salmonid embryo (7d)

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# CALA

Canadian Association for  
Laboratory Accreditation Inc.

## CALA Directory of Laboratories

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**Membership Number:** 2800

**Laboratory Name:** HydroQual Laboratories Ltd.

**Parent Institution:** Golder Associates Ltd.

**Address:** #4, 6125 12th St. S.E. Calgary AB T2H 2K1

**Contact:** Mrs. Tamara McClure

**Phone:** (403) 253-7121

**Fax:** (403) 252-9363

**Email:** tmcclure@golder.com; tanya\_harvey@golder.com

---

**Standard:** Conforms with requirements of ISO/IEC 17025

**Clients Served:** All Interested Parties

**Revised On:** September 28, 2012

**Valid To:** March 24, 2014

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### Scope of Accreditation

#### Air (Mycology)

Mould - Air (043)

AIR-ME-002; POWERS, E.M. 1995. APPL. & ENV. MICRO 61(10): 3756-3758

CULTURABLE AIR MICROBES

fungus genus

fungus species

#### Air (Mycology)

Mould - Air (047)

AIR-ME-001; ZEFON ANALYTICAL ACCESSORIES/ ASTM D7391-09

DIRECT MICROSCOPE IDENTIFICATION (AIR-O-CELL)

fungus genus

#### Solids (Toxicology)

Chironomids - Sediment (013)

WTR-ME-026; EPS 1/RM/32

SURVIVAL AND GROWTH

Chironomus

#### Solids (Toxicology)

Earthworm - Soil (022)

SOIL-ME-017; EPS 1/RM/43

SURVIVAL

Eisenia andrei

Eisenia fetida

#### Solids (Toxicology)

Earthworm - Soil (049)

SOIL-ME-009; EPS 1/RM/43

SURVIVAL AND REPRODUCTION

Eisenia andrei

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**Solids (Toxicology)**

Hyalella azteca - Sediment (014)  
WTR-ME-021; EPS 1/RM/33  
SURVIVAL AND GROWTH  
Hyalella azteca

**Solids (Toxicology)**

Plant Growth - Soil (050)  
SOIL-ME-023; EPS 1/RM/45  
EMERGENCE  
Lettuce  
Northern wheatgrass

**Water (Microbiology)**

Cryptosporidium and Giardia - Water (025)  
WTQR-ME-014; EPA 815-R-05-002.METHOD 1623  
FILTRATION/IMS/FA  
Cryptosporidium  
Giardia

**Water (Microbiology)**

Escherichia coli (E. coli) - Water (027)  
WTRQ-ME-009; modified from SM 9223 B  
MOST PROBABLE NUMBER  
Escherichia coli (E. coli)

**Water (Microbiology)**

Microcystins - Water (037)  
WTRQ-ME-005; AN AND CARMICHAEL (1994) TOXICON, 32, 1495-1507.  
PROTEIN PHOSPHATASE INHIBITION  
Microcystins

**Water (Microbiology)**

Total Coliforms - Water (052)  
WTRQ-ME-009; modified from SM 9223 B  
MOST PROBABLE NUMBER  
Total Coliforms

**Water (Toxicology)**

Ceriodaphnia dubia - Water (006)  
WTR-ME-018; EPS 1/RM/21  
SURVIVAL AND REPRODUCTION  
Ceriodaphnia dubia

**Water (Toxicology)**

Daphnia magna - Water (002)  
WTR-ME-015; EPS 1/RM/11, EPS 1/RM/14  
ACUTE LETHALITY (SURVIVAL)  
Daphnia LC50 (48 h)

**Water (Toxicology)**

Fathead Minnow - Water (007)  
WTR-ME-046; EPS 1/RM/22  
GROWTH AND SURVIVAL  
Fathead minnow

**Water (Toxicology)**

Lemna minor - Water (017)  
WTR-ME-030; EPS 1/RM/37  
GROWTH INHIBITION  
Lemna minor

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**Water (Toxicology)**

Microtox - Liquid Phase - Water (003)

SOIL-ME-001; EPS 1/RM/24

BIOLUMINESCENCE

Microtox IC50 (15 min)

**Water (Toxicology)**

Pseudokirchneriella subcapitata - Water (008)

WTR-ME-034; EPS 1/RM/25

GROWTH INHIBITION

Pseudokirchneriella subcapitata

**Water (Toxicology)**

Rainbow Trout - Water (001)

WTR-ME-041; EPS 1/RM/9, EPS 1/RM/13

ACUTE LETHALITY (SURVIVAL)

Trout LC50 (96 h)

**Water (Toxicology)**

Salmonid - Water (026)

WTR-ME-044; EPS 1/RM/28

EARLY LIFE STAGE

Salmonid eggs

Salmonid embryo

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The list of tests and measurement capabilities for which a laboratory is accredited can change at any time due to circumstances such as scope extensions, voluntary withdrawal of tests by the laboratory and suspension. Scopes are published by the CALA via the Internet at [http://www.cala.ca/cala\\_directories.html](http://www.cala.ca/cala_directories.html)

# State of Utah

## Department of Health

### Environmental Laboratory Certification Program

*Certification is hereby granted to*

ALS Laboratory Group, Environmental Division (Fort Collins, CO)

225 Commerce Drive  
Fort Collins, CO 80524

*Has conformed with the  
2009 TNI Standard*

*Scope of accreditation is limited to the  
State of Utah Accredited Fields of Accreditation  
Which accompanies this Certificate*

EPA Number: CO00078  
Expiration Date: 11/30/2013  
Certificate Number: CO000782013-7



Robyn M. Atkinson, Ph.D, HCLD  
Director, Unified State Laboratories: Public Health



*Continued accredited status depends on successful ongoing participation in the program.*





State of Utah  
 Gary R Herbert  
 Governor  
 Gregory S Bell  
 Lieutenant Governor

# Utah Department of Health

W. David Patton Ph.D

Executive Director

## Disease Control and Prevention

Robyn M. Atkinson, Ph.D, HCLD

Director, Unified State Laboratories: Public Health

## Bureau of Laboratory Improvement

David B Mendenhall, MPA, MT (ASCP)

Bureau Director



EPA Number: **CO00078**

Attachment to Certificate Number: **CO000782013-7**

Page 1 of 27

ALS Laboratory Group, Environmental Division (Fort Collins, CO)

Start Date Expires AB

### Program/Matrix: CWA (Non Potable Water)

#### Method EPA 120.1

Conductivity 7/1/2012 11/30/2013 UT

#### Method EPA 150.1

pH 7/1/2012 11/30/2013 UT

#### Method EPA 160.1

Residue-filterable (TDS) 7/1/2012 11/30/2013 UT

#### Method EPA 160.2

Residue-nonfilterable (TSS) 7/1/2012 11/30/2013 UT

#### Method EPA 160.3

Residue-total 7/1/2012 11/30/2013 UT

#### Method EPA 1664A (HEM)

Oil & Grease 7/1/2012 11/30/2013 UT

#### Method EPA 200.7

Aluminum 7/1/2012 11/30/2013 UT

Antimony 7/1/2012 11/30/2013 UT

Arsenic 7/1/2012 11/30/2013 UT

Barium 7/1/2012 11/30/2013 UT

Beryllium 7/1/2012 11/30/2013 UT

Boron 7/1/2012 11/30/2013 UT

Cadmium 7/1/2012 11/30/2013 UT

Calcium 7/1/2012 11/30/2013 UT

Chromium 7/1/2012 11/30/2013 UT

Cobalt 7/1/2012 11/30/2013 UT

Copper 7/1/2012 11/30/2013 UT

Iron 7/1/2012 11/30/2013 UT

Lead 7/1/2012 11/30/2013 UT

Lithium 7/1/2012 11/30/2013 UT

Magnesium 7/1/2012 11/30/2013 UT

Manganese 7/1/2012 11/30/2013 UT

Molybdenum 7/1/2012 11/30/2013 UT

Nickel 7/1/2012 11/30/2013 UT

Potassium 7/1/2012 11/30/2013 UT

Selenium 7/1/2012 11/30/2013 UT

Silica as SiO2 7/1/2012 11/30/2013 UT

Silver 7/1/2012 11/30/2013 UT



ALS Laboratory Group, Environmental Division (Fort Collins, CO)

Start Date	Expires	AB
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**Program/Matrix: CWA (Non Potable Water)**

Sodium	7/1/2012	11/30/2013	UT
Strontium	7/1/2012	11/30/2013	UT
Thallium	7/1/2012	11/30/2013	UT
Tin	7/1/2012	11/30/2013	UT
Titanium	7/1/2012	11/30/2013	UT
Total hardness as CaCO <sub>3</sub>	7/1/2012	11/30/2013	UT
Vanadium	7/1/2012	11/30/2013	UT
Zinc	7/1/2012	11/30/2013	UT

**Method EPA 200.8**

Aluminum	7/1/2012	11/30/2013	UT
Antimony	7/1/2012	11/30/2013	UT
Arsenic	7/1/2012	11/30/2013	UT
Barium	7/1/2012	11/30/2013	UT
Beryllium	7/1/2012	11/30/2013	UT
Cadmium	7/1/2012	11/30/2013	UT
Calcium	7/1/2012	11/30/2013	UT
Chromium	7/1/2012	11/30/2013	UT
Cobalt	7/1/2012	11/30/2013	UT
Copper	7/1/2012	11/30/2013	UT
Iron	7/1/2012	11/30/2013	UT
Lead	7/1/2012	11/30/2013	UT
Magnesium	7/1/2012	11/30/2013	UT
Manganese	7/1/2012	11/30/2013	UT
Molybdenum	7/1/2012	11/30/2013	UT
Nickel	7/1/2012	11/30/2013	UT
Potassium	7/1/2012	11/30/2013	UT
Selenium	7/1/2012	11/30/2013	UT
Silver	7/1/2012	11/30/2013	UT
Sodium	7/1/2012	11/30/2013	UT
Strontium	7/1/2012	11/30/2013	UT
Thallium	7/1/2012	11/30/2013	UT
Thorium	7/1/2012	11/30/2013	UT
Tin	7/1/2012	11/30/2013	UT
Uranium	7/1/2012	11/30/2013	UT
Vanadium	7/1/2012	11/30/2013	UT
Zinc	7/1/2012	11/30/2013	UT

**Method EPA 245.1**

Mercury	7/1/2012	11/30/2013	UT
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**Method EPA 300.0**

Bromide	7/1/2012	11/30/2013	UT
Chloride	7/1/2012	11/30/2013	UT
Fluoride	7/1/2012	11/30/2013	UT
Nitrate as N	7/1/2012	11/30/2013	UT
Nitrite as N	7/1/2012	11/30/2013	UT
Orthophosphate as P	7/1/2012	11/30/2013	UT
Sulfate	7/1/2012	11/30/2013	UT

**Method EPA 310.1**

Alkalinity as CaCO <sub>3</sub>	7/1/2012	11/30/2013	UT
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ALS Laboratory Group, Environmental Division (Fort Collins, CO)

Start Date	Expires	AB
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**Program/Matrix: CWA (Non Potable Water)**

<b>Method EPA 335.2</b>			
Cyanide	7/1/2012	11/30/2013	UT
<b>Method EPA 340.2</b>			
Fluoride	7/1/2012	11/30/2013	UT
<b>Method EPA 350.1</b>			
Ammonia as N	7/1/2012	11/30/2013	UT
<b>Method EPA 353.2</b>			
Nitrate-nitrite	7/1/2012	11/30/2013	UT
<b>Method EPA 354.1</b>			
Nitrite as N	7/1/2012	11/30/2013	UT
<b>Method EPA 365.2</b>			
Orthophosphate as P	7/1/2012	11/30/2013	UT
Phosphorus, total	7/1/2012	11/30/2013	UT
<b>Method EPA 376.1</b>			
Sulfide	7/1/2012	11/30/2013	UT
<b>Method EPA 415.1</b>			
Total organic carbon	7/1/2012	11/30/2013	UT
<b>Method EPA 608</b>			
4,4'-DDD	7/1/2012	11/30/2013	UT
4,4'-DDE	7/1/2012	11/30/2013	UT
4,4'-DDT	7/1/2012	11/30/2013	UT
Aldrin	7/1/2012	11/30/2013	UT
alpha-BHC (alpha-Hexachlorocyclohexane)	7/1/2012	11/30/2013	UT
Aroclor-1016 (PCB-1016)	7/1/2012	11/30/2013	UT
Aroclor-1221 (PCB-1221)	7/1/2012	11/30/2013	UT
Aroclor-1232 (PCB-1232)	7/1/2012	11/30/2013	UT
Aroclor-1242 (PCB-1242)	7/1/2012	11/30/2013	UT
Aroclor-1248 (PCB-1248)	7/1/2012	11/30/2013	UT
Aroclor-1254 (PCB-1254)	7/1/2012	11/30/2013	UT
Aroclor-1260 (PCB-1260)	7/1/2012	11/30/2013	UT
beta-BHC (beta-Hexachlorocyclohexane)	7/1/2012	11/30/2013	UT
Chlordane (tech.)	7/1/2012	11/30/2013	UT
delta-BHC	7/1/2012	11/30/2013	UT
Dieldrin	7/1/2012	11/30/2013	UT
Endosulfan I	7/1/2012	11/30/2013	UT
Endosulfan II	7/1/2012	11/30/2013	UT
Endosulfan sulfate	7/1/2012	11/30/2013	UT
Endrin	7/1/2012	11/30/2013	UT
Endrin aldehyde	7/1/2012	11/30/2013	UT
Endrin ketone	7/1/2012	11/30/2013	UT
gamma-BHC (Lindane, gamma-Hexachlorocyclohexane)	7/1/2012	11/30/2013	UT
Heptachlor	7/1/2012	11/30/2013	UT
Heptachlor epoxide	7/1/2012	11/30/2013	UT
Methoxychlor	7/1/2012	11/30/2013	UT
Toxaphene (Chlorinated camphene)	7/1/2012	11/30/2013	UT

**Method EPA 615**

ALS Laboratory Group, Environmental Division (Fort Collins, CO)

Start Date Expires AB

**Program/Matrix: CWA (Non Potable Water)**

2,4,5-T	7/1/2012	11/30/2013	UT
2,4-D	7/1/2012	11/30/2013	UT
2,4-DB	7/1/2012	11/30/2013	UT
Dalapon	7/1/2012	11/30/2013	UT
Dicamba	7/1/2012	11/30/2013	UT
Dichloroprop (Dichloroprop)	7/1/2012	11/30/2013	UT
MCPA	7/1/2012	11/30/2013	UT
MCPP	7/1/2012	11/30/2013	UT
Silvex (2,4,5-TP)	7/1/2012	11/30/2013	UT
<b>Method EPA 900</b>			
Gross-alpha	7/1/2012	11/30/2013	UT
Gross-beta	7/1/2012	11/30/2013	UT
<b>Method EPA 901.1</b>			
Gamma Emitters	7/1/2012	11/30/2013	UT
<b>Method EPA 903</b>			
Radium-226	7/1/2012	11/30/2013	UT
Total radium	7/1/2012	11/30/2013	UT
<b>Method EPA 903.1</b>			
Radium-226	7/1/2012	11/30/2013	UT
<b>Method EPA 904</b>			
Radium-228	7/1/2012	11/30/2013	UT
<b>Method EPA 906.0</b>			
Tritium	7/1/2012	11/30/2013	UT
<b>Method HASL 300 U-02-RC</b>			
Uranium	7/1/2012	11/30/2013	UT
<b>Method SM 2320 B</b>			
Alkalinity as CaCO <sub>3</sub>	7/1/2012	11/30/2013	UT
<b>Method SM 2340 B</b>			
Total hardness as CaCO <sub>3</sub>	7/1/2012	11/30/2013	UT
<b>Method SM 2510 B</b>			
Conductivity	7/1/2012	11/30/2013	UT
<b>Method SM 2540 B</b>			
Residue-total	7/1/2012	11/30/2013	UT
<b>Method SM 2540 C</b>			
Residue-filterable (TDS)	7/1/2012	11/30/2013	UT
<b>Method SM 2540 D</b>			
Residue-nonfilterable (TSS)	7/1/2012	11/30/2013	UT
<b>Method SM 3500-Cr D</b>			
Chromium VI	7/1/2012	11/30/2013	UT
<b>Method SM 4500-CN<sup>-</sup> C</b>			
Cyanide	7/1/2012	11/30/2013	UT
<b>Method SM 4500-CN<sup>-</sup> E</b>			
Cyanide	7/1/2012	11/30/2013	UT
<b>Method SM 4500-CN<sup>-</sup> G</b>			
Cyanide	7/1/2012	11/30/2013	UT

**Program/Matrix: CWA (Non Potable Water)****Method SM 4500-F<sup>-</sup> C**

Fluoride

7/1/2012 11/30/2013 UT

**Method SM 4500-H<sup>+</sup> B**

pH

7/1/2012 11/30/2013 UT

**Method SM 4500-NH<sub>3</sub> H**

Ammonia as N

7/1/2012 11/30/2013 UT

**Method SM 4500-NO<sub>2</sub><sup>-</sup> B**

Nitrite as N

7/1/2012 11/30/2013 UT

**Method SM 4500-P E**

Orthophosphate as P

7/1/2012 11/30/2013 UT

Phosphorus, total

7/1/2012 11/30/2013 UT

**Method SM 4500-S<sub>2</sub><sup>-</sup> F**

Sulfide

7/1/2012 11/30/2013 UT

**Method SM 5310 C**

Total organic carbon

7/1/2012 11/30/2013 UT

**Method SM 7500-3H B**

Tritium

7/1/2012 11/30/2013 UT

**Method SM 7500-Rn B**

Radon-222

7/1/2012 11/30/2013 UT

**Program/Matrix: RCRA (Non Potable Water)****Method ASTM D3972-90**

Thorium-228	7/1/2012	11/30/2013	UT
Thorium-230	7/1/2012	11/30/2013	UT
Thorium-232	7/1/2012	11/30/2013	UT

**Method EPA 053917 p. 33 EMSL LV**

Thorium-228	7/1/2012	11/30/2013	UT
Thorium-230	7/1/2012	11/30/2013	UT
Thorium-232	7/1/2012	11/30/2013	UT

**Method EPA 1010A**

Ignitability	7/1/2012	11/30/2013	UT
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**Method EPA 1110A**

Corrosivity toward steel	7/1/2012	11/30/2013	UT
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**Method EPA 1311**

Toxicity Characteristic Leaching Procedure Metals	7/1/2012	11/30/2013	UT
Toxicity Characteristic Leaching Procedure Semi-Volatiles	7/1/2012	11/30/2013	UT
Toxicity Characteristic Leaching Procedure Volatiles	7/1/2012	11/30/2013	UT

**Method EPA 1312**

Preparation/Extraction	7/1/2012	11/30/2013	UT
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**Method EPA 1664A**

Total recoverable petroleum hydrocarbons (TRPH)	7/1/2012	11/30/2013	UT
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**Method EPA 1664A (HEM)**

Oil & Grease	7/1/2012	11/30/2013	UT
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**Method EPA 3005A**

Preparation/Extraction	7/1/2012	11/30/2013	UT
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**Method EPA 3010A**

Preparation/Extraction	7/1/2012	11/30/2013	UT
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**Method EPA 3510C**

Preparation/Extraction	7/1/2012	11/30/2013	UT
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**Method EPA 3520C**

Preparation/Extraction	7/1/2012	11/30/2013	UT
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**Method EPA 3620B**

Preparation/Extraction	7/1/2012	11/30/2013	UT
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**Method EPA 3630C**

Preparation/Extraction	7/1/2012	11/30/2013	UT
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**Method EPA 3640A**

Preparation/Extraction	7/1/2012	11/30/2013	UT
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**Method EPA 3660A**

Preparation/Extraction	7/1/2012	11/30/2013	UT
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**Method EPA 5030C**

Preparation/Extraction	7/1/2012	11/30/2013	UT
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**Method EPA 6010B**

Aluminum	7/1/2012	11/30/2013	UT
Antimony	7/1/2012	11/30/2013	UT
Arsenic	7/1/2012	11/30/2013	UT



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**Program/Matrix: RCRA (Non Potable Water)**

Barium	7/1/2012	11/30/2013	UT
Beryllium	7/1/2012	11/30/2013	UT
Boron	7/1/2012	11/30/2013	UT
Cadmium	7/1/2012	11/30/2013	UT
Calcium	7/1/2012	11/30/2013	UT
Chromium	7/1/2012	11/30/2013	UT
Cobalt	7/1/2012	11/30/2013	UT
Copper	7/1/2012	11/30/2013	UT
Iron	7/1/2012	11/30/2013	UT
Lead	7/1/2012	11/30/2013	UT
Lithium	7/1/2012	11/30/2013	UT
Magnesium	7/1/2012	11/30/2013	UT
Manganese	7/1/2012	11/30/2013	UT
Molybdenum	7/1/2012	11/30/2013	UT
Nickel	7/1/2012	11/30/2013	UT
Phosphorus, total	7/1/2012	11/30/2013	UT
Potassium	7/1/2012	11/30/2013	UT
Selenium	7/1/2012	11/30/2013	UT
Silica as SiO2	7/1/2012	11/30/2013	UT
Silicon	7/1/2012	11/30/2013	UT
Silver	7/1/2012	11/30/2013	UT
Sodium	7/1/2012	11/30/2013	UT
Strontium	7/1/2012	11/30/2013	UT
Thallium	7/1/2012	11/30/2013	UT
Tin	7/1/2012	11/30/2013	UT
Titanium	7/1/2012	11/30/2013	UT
Vanadium	7/1/2012	11/30/2013	UT
Zinc	7/1/2012	11/30/2013	UT

**Method EPA 6020A**

Aluminum	7/1/2012	11/30/2013	UT
Antimony	7/1/2012	11/30/2013	UT
Arsenic	7/1/2012	11/30/2013	UT
Cadmium	7/1/2012	11/30/2013	UT
Calcium	7/1/2012	11/30/2013	UT
Copper	7/1/2012	11/30/2013	UT
Iron	7/1/2012	11/30/2013	UT
Lead	7/1/2012	11/30/2013	UT
Magnesium	7/1/2012	11/30/2013	UT
Molybdenum	7/1/2012	11/30/2013	UT
Nickel	7/1/2012	11/30/2013	UT
Potassium	7/1/2012	11/30/2013	UT
Selenium	7/1/2012	11/30/2013	UT
Silver	7/1/2012	11/30/2013	UT
Strontium	7/1/2012	11/30/2013	UT
Thallium	7/1/2012	11/30/2013	UT
Thorium	7/1/2012	11/30/2013	UT
Uranium	7/1/2012	11/30/2013	UT
Vanadium	7/1/2012	11/30/2013	UT

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**Program/Matrix: RCRA (Non Potable Water)****Method EPA 7196A**

Chromium VI 7/1/2012 11/30/2013 UT

**Method EPA 7470A**

Mercury 7/1/2012 11/30/2013 UT

**Method EPA 8015D**

Diesel range organics (DRO) 7/1/2012 11/30/2013 UT

Ethylene glycol 7/1/2012 11/30/2013 UT

Gasoline range organics (GRO) 7/1/2012 11/30/2013 UT

**Method EPA 8081A**

4,4'-DDD 7/1/2012 11/30/2013 UT

4,4'-DDE 7/1/2012 11/30/2013 UT

4,4'-DDT 7/1/2012 11/30/2013 UT

Aldrin 7/1/2012 11/30/2013 UT

alpha-BHC (alpha-Hexachlorocyclohexane) 7/1/2012 11/30/2013 UT

alpha-Chlordane 7/1/2012 11/30/2013 UT

beta-BHC (beta-Hexachlorocyclohexane) 7/1/2012 11/30/2013 UT

Chlordane (tech.) 7/1/2012 11/30/2013 UT

delta-BHC 7/1/2012 11/30/2013 UT

Dieldrin 7/1/2012 11/30/2013 UT

Endosulfan I 7/1/2012 11/30/2013 UT

Endosulfan II 7/1/2012 11/30/2013 UT

Endosulfan sulfate 7/1/2012 11/30/2013 UT

Endrin 7/1/2012 11/30/2013 UT

Endrin aldehyde 7/1/2012 11/30/2013 UT

Endrin ketone 7/1/2012 11/30/2013 UT

gamma-BHC (Lindane, gamma-Hexachlorocyclohexane) 7/1/2012 11/30/2013 UT

gamma-Chlordane 7/1/2012 11/30/2013 UT

Heptachlor 7/1/2012 11/30/2013 UT

Heptachlor epoxide 7/1/2012 11/30/2013 UT

Methoxychlor 7/1/2012 11/30/2013 UT

Toxaphene (Chlorinated camphene) 7/1/2012 11/30/2013 UT

**Method EPA 8082**

Aroclor-1016 (PCB-1016) 7/1/2012 11/30/2013 UT

Aroclor-1221 (PCB-1221) 7/1/2012 11/30/2013 UT

Aroclor-1232 (PCB-1232) 7/1/2012 11/30/2013 UT

Aroclor-1242 (PCB-1242) 7/1/2012 11/30/2013 UT

Aroclor-1248 (PCB-1248) 7/1/2012 11/30/2013 UT

Aroclor-1254 (PCB-1254) 7/1/2012 11/30/2013 UT

Aroclor-1260 (PCB-1260) 7/1/2012 11/30/2013 UT

Aroclor-1268 (PCB-1268) 7/1/2012 11/30/2013 UT

PCBs 7/1/2012 11/30/2013 UT

**Method EPA 8141A**

Azinphos-methyl (Guthion) 7/1/2012 11/30/2013 UT

Bolstar (Sulprofos) 7/1/2012 11/30/2013 UT

Chlorpyrifos 7/1/2012 11/30/2013 UT

Coumaphos 7/1/2012 11/30/2013 UT

Demeton-o 7/1/2012 11/30/2013 UT

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**Program/Matrix: RCRA (Non Potable Water)**

Demeton-s	7/1/2012	11/30/2013	UT
Diazinon	7/1/2012	11/30/2013	UT
Dichlorovos (DDVP, Dichlorvos)	7/1/2012	11/30/2013	UT
Disulfoton	7/1/2012	11/30/2013	UT
Ethoprop	7/1/2012	11/30/2013	UT
Fensulfothion	7/1/2012	11/30/2013	UT
Fenthion	7/1/2012	11/30/2013	UT
Malathion	7/1/2012	11/30/2013	UT
Merphos	7/1/2012	11/30/2013	UT
Methyl parathion (Parathion, methyl)	7/1/2012	11/30/2013	UT
Mevinphos	7/1/2012	11/30/2013	UT
Naled	7/1/2012	11/30/2013	UT
Phorate	7/1/2012	11/30/2013	UT
Ronnel	7/1/2012	11/30/2013	UT
Tetrachlorvinphos (Stirophos, Gardona) Z-isomer	7/1/2012	11/30/2013	UT
Tokuthion (Prothiophos)	7/1/2012	11/30/2013	UT
Trichloronate	7/1/2012	11/30/2013	UT

**Method EPA 8151A**

2,4,5-T	7/1/2012	11/30/2013	UT
2,4-D	7/1/2012	11/30/2013	UT
2,4-DB	7/1/2012	11/30/2013	UT
Dalapon	7/1/2012	11/30/2013	UT
Dicamba	7/1/2012	11/30/2013	UT
Dichloroprop (Dichlorprop)	7/1/2012	11/30/2013	UT
Dinoseb (2-sec-butyl-4,6-dinitrophenol, DNBP)	7/1/2012	11/30/2013	UT
MCPA	7/1/2012	11/30/2013	UT
MCPP	7/1/2012	11/30/2013	UT
Silvex (2,4,5-TP)	7/1/2012	11/30/2013	UT

**Method EPA 8260C**

1,1,1,2-Tetrachloroethane	7/1/2012	11/30/2013	UT
1,1,1-Trichloroethane	7/1/2012	11/30/2013	UT
1,1,2,2-Tetrachloroethane	7/1/2012	11/30/2013	UT
1,1,2-Trichloroethane	7/1/2012	11/30/2013	UT
1,1-Dichloroethane	7/1/2012	11/30/2013	UT
1,1-Dichloroethylene	7/1/2012	11/30/2013	UT
1,2,3-Trichlorobenzene	7/1/2012	11/30/2013	UT
1,2,3-Trichloropropane	7/1/2012	11/30/2013	UT
1,2,3-Trimethylbenzene	7/1/2012	11/30/2013	UT
1,2,4-Trichlorobenzene	7/1/2012	11/30/2013	UT
1,2-Dibromo-3-chloropropane (DBCP)	7/1/2012	11/30/2013	UT
1,2-Dibromoethane (EDB, Ethylene dibromide)	7/1/2012	11/30/2013	UT
1,2-Dichlorobenzene (o-Dichlorobenzene)	7/1/2012	11/30/2013	UT
1,2-Dichloroethane (Ethylene dichloride)	7/1/2012	11/30/2013	UT
1,2-Dichloropropane	7/1/2012	11/30/2013	UT
1,3,5-Trimethylbenzene	7/1/2012	11/30/2013	UT
1,3-Dichlorobenzene	7/1/2012	11/30/2013	UT
1,3-Dichloropropane	7/1/2012	11/30/2013	UT
1,4-Dichlorobenzene	7/1/2012	11/30/2013	UT



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**Program/Matrix: RCRA (Non Potable Water)**

1,4-Dioxane (1,4- Diethyleneoxide)	7/1/2012	11/30/2013	UT
1-Chlorobutane	1/23/2013	11/30/2013	UT
1-Chlorohexane	7/1/2012	11/30/2013	UT
2,2-Dichloropropane	7/1/2012	11/30/2013	UT
2-Butanone (Methyl ethyl ketone, MEK)	7/1/2012	11/30/2013	UT
2-Chloroethyl vinyl ether	7/1/2012	11/30/2013	UT
2-Chlorotoluene	7/1/2012	11/30/2013	UT
2-Hexanone	7/1/2012	11/30/2013	UT
4-Chlorotoluene	7/1/2012	11/30/2013	UT
4-Isopropyltoluene (p-Cymene,p-Isopropyltoluene)	7/1/2012	11/30/2013	UT
4-Methyl-2-pentanone (MIBK)	7/1/2012	11/30/2013	UT
Acetone	7/1/2012	11/30/2013	UT
Acetonitrile	7/1/2012	11/30/2013	UT
Acrolein (Propenal)	7/1/2012	11/30/2013	UT
Acrylonitrile	7/1/2012	11/30/2013	UT
Allyl chloride (3-Chloropropene)	7/1/2012	11/30/2013	UT
Benzene	7/1/2012	11/30/2013	UT
Bromobenzene	7/1/2012	11/30/2013	UT
Bromochloromethane	7/1/2012	11/30/2013	UT
Bromodichloromethane	7/1/2012	11/30/2013	UT
Bromoform	7/1/2012	11/30/2013	UT
Carbon disulfide	7/1/2012	11/30/2013	UT
Carbon tetrachloride	7/1/2012	11/30/2013	UT
Chloroacetonitrile	1/23/2013	11/30/2013	UT
Chlorobenzene	7/1/2012	11/30/2013	UT
Chlorodibromomethane	7/1/2012	11/30/2013	UT
Chloroethane (Ethyl chloride)	7/1/2012	11/30/2013	UT
Chloroform	7/1/2012	11/30/2013	UT
Chloroprene (2-Chloro-1,3-butadiene)	7/1/2012	11/30/2013	UT
cis-1,2-Dichloroethylene	7/1/2012	11/30/2013	UT
cis-1,3-Dichloropropene	7/1/2012	11/30/2013	UT
Dibromomethane (Methylene bromide)	7/1/2012	11/30/2013	UT
Dichlorodifluoromethane (Freon-12)	7/1/2012	11/30/2013	UT
Diethyl ether	7/1/2012	11/30/2013	UT
Ethanol	7/1/2012	11/30/2013	UT
Ethyl methacrylate	7/1/2012	11/30/2013	UT
Ethylbenzene	7/1/2012	11/30/2013	UT
Hexachlorobutadiene	7/1/2012	11/30/2013	UT
Hexachloroethane	7/1/2012	11/30/2013	UT
Iodomethane (Methyl iodide)	7/1/2012	11/30/2013	UT
Isobutyl alcohol (2-Methyl-1-propanol)	7/1/2012	11/30/2013	UT
Isopropylbenzene	7/1/2012	11/30/2013	UT
Methacrylonitrile	7/1/2012	11/30/2013	UT
Methyl acrylate	1/23/2013	11/30/2013	UT
Methyl bromide (Bromomethane)	7/1/2012	11/30/2013	UT
Methyl chloride (Chloromethane)	7/1/2012	11/30/2013	UT
Methyl methacrylate	7/1/2012	11/30/2013	UT
Methyl tert-butyl ether (MTBE)	7/1/2012	11/30/2013	UT
Methylene chloride (Dichloromethane)	7/1/2012	11/30/2013	UT

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**Program/Matrix: RCRA (Non Potable Water)**

m-Xylene	7/1/2012	11/30/2013	UT
Naphthalene	7/1/2012	11/30/2013	UT
n-Butyl alcohol (1-Butanol, n-Butanol)	7/1/2012	11/30/2013	UT
n-Butylbenzene	7/1/2012	11/30/2013	UT
n-Propylbenzene	7/1/2012	11/30/2013	UT
o-Xylene	7/1/2012	11/30/2013	UT
Pentafluorobenzene	1/23/2013	11/30/2013	UT
Propionitrile (Ethyl cyanide)	7/1/2012	11/30/2013	UT
p-Xylene	7/1/2012	11/30/2013	UT
sec-Butylbenzene	7/1/2012	11/30/2013	UT
Styrene	7/1/2012	11/30/2013	UT
Tetrachloroethylene (Perchloroethylene)	7/1/2012	11/30/2013	UT
Toluene	7/1/2012	11/30/2013	UT
trans-1,2-Dichloroethylene	7/1/2012	11/30/2013	UT
trans-1,3-Dichloropropylene	7/1/2012	11/30/2013	UT
trans-1,4-Dichloro-2-butene	7/1/2012	11/30/2013	UT
Trichloroethene (Trichloroethylene)	7/1/2012	11/30/2013	UT
Trichlorofluoromethane (Fluorotrichloromethane, Freon 11)	7/1/2012	11/30/2013	UT
Vinyl acetate	7/1/2012	11/30/2013	UT
Vinyl chloride	7/1/2012	11/30/2013	UT
Xylene (total)	7/1/2012	11/30/2013	UT

**Method EPA 8270D**

1,2,4,5-Tetrachlorobenzene	7/1/2012	11/30/2013	UT
1,2,4-Trichlorobenzene	7/1/2012	11/30/2013	UT
1,2-Dichlorobenzene (o-Dichlorobenzene)	7/1/2012	11/30/2013	UT
1,2-Dinitrobenzene	7/1/2012	11/30/2013	UT
1,3,5-Trinitrobenzene (1,3,5-TNB)	7/1/2012	11/30/2013	UT
1,3-Dichlorobenzene	7/1/2012	11/30/2013	UT
1,3-Dinitrobenzene (1,3-DNB)	7/1/2012	11/30/2013	UT
1,4-Dichlorobenzene	7/1/2012	11/30/2013	UT
1,4-Dinitrobenzene	7/1/2012	11/30/2013	UT
1-Methylnaphthalene	7/1/2012	11/30/2013	UT
1-Naphthylamine	7/1/2012	11/30/2013	UT
2,3,4,6-Tetrachlorophenol	7/1/2012	11/30/2013	UT
2,4,5-Trichlorophenol	7/1/2012	11/30/2013	UT
2,4,6-Trichlorophenol	7/1/2012	11/30/2013	UT
2,4-Dichlorophenol	7/1/2012	11/30/2013	UT
2,4-Dimethylphenol	7/1/2012	11/30/2013	UT
2,4-Dinitrophenol	7/1/2012	11/30/2013	UT
2,4-Dinitrotoluene (2,4-DNT)	7/1/2012	11/30/2013	UT
2,6-Dichlorophenol	7/1/2012	11/30/2013	UT
2,6-Dinitrotoluene (2,6-DNT)	7/1/2012	11/30/2013	UT
2-Acetylaminofluorene	7/1/2012	11/30/2013	UT
2-Chloronaphthalene	7/1/2012	11/30/2013	UT
2-Chlorophenol	7/1/2012	11/30/2013	UT
2-Methyl-4,6-dinitrophenol (4,6-Dinitro-2-methylphenol)	7/1/2012	11/30/2013	UT
2-Methylnaphthalene	7/1/2012	11/30/2013	UT
2-Methylphenol (o-Cresol)	7/1/2012	11/30/2013	UT

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**Program/Matrix: RCRA (Non Potable Water)**

2-Naphthylamine	7/1/2012	11/30/2013	UT
2-Nitroaniline	7/1/2012	11/30/2013	UT
2-Nitrophenol	7/1/2012	11/30/2013	UT
3,3'-Dichlorobenzidine	7/1/2012	11/30/2013	UT
3-Methylcholanthrene	7/1/2012	11/30/2013	UT
3-Methylphenol (m-Cresol)	7/1/2012	11/30/2013	UT
3-Nitroaniline	7/1/2012	11/30/2013	UT
4-Bromophenyl phenyl ether	7/1/2012	11/30/2013	UT
4-Chloro-3-methylphenol	7/1/2012	11/30/2013	UT
4-Chloroaniline	7/1/2012	11/30/2013	UT
4-Chlorophenyl phenylether	7/1/2012	11/30/2013	UT
4-Methylphenol (p-Cresol)	7/1/2012	11/30/2013	UT
4-Nitroaniline	7/1/2012	11/30/2013	UT
4-Nitrophenol	7/1/2012	11/30/2013	UT
5-Nitro-o-toluidine	7/1/2012	11/30/2013	UT
7,12-Dimethylbenz(a) anthracene	7/1/2012	11/30/2013	UT
Acenaphthene	7/1/2012	11/30/2013	UT
Acenaphthylene	7/1/2012	11/30/2013	UT
Acetophenone	7/1/2012	11/30/2013	UT
Aniline	7/1/2012	11/30/2013	UT
Anthracene	7/1/2012	11/30/2013	UT
Azobenzene (1,2-Diphenylhydrazine)	7/1/2012	11/30/2013	UT
Benzidine	7/1/2012	11/30/2013	UT
Benzo(a)anthracene	7/1/2012	11/30/2013	UT
Benzo(a)pyrene	7/1/2012	11/30/2013	UT
Benzo(b)fluoranthene	7/1/2012	11/30/2013	UT
Benzo(g,h,i)perylene	7/1/2012	11/30/2013	UT
Benzo(k)fluoranthene	7/1/2012	11/30/2013	UT
Benzoic acid	7/1/2012	11/30/2013	UT
Benzyl alcohol	7/1/2012	11/30/2013	UT
bis(2-Chloroethoxy)methane	7/1/2012	11/30/2013	UT
bis(2-Chloroethyl) ether	7/1/2012	11/30/2013	UT
bis(2-Chloroisopropyl) ether	7/1/2012	11/30/2013	UT
bis(2-Ethylhexyl) phthalate (DEHP)	7/1/2012	11/30/2013	UT
Butyl benzyl phthalate	7/1/2012	11/30/2013	UT
Carbazole	7/1/2012	11/30/2013	UT
Chrysene	7/1/2012	11/30/2013	UT
Dibenz(a,h) anthracene	7/1/2012	11/30/2013	UT
Dibenzofuran	7/1/2012	11/30/2013	UT
Diethyl phthalate	7/1/2012	11/30/2013	UT
Dimethyl phthalate	7/1/2012	11/30/2013	UT
Di-n-butyl phthalate	7/1/2012	11/30/2013	UT
Di-n-octyl phthalate	7/1/2012	11/30/2013	UT
Ethyl methanesulfonate	7/1/2012	11/30/2013	UT
Fluoranthene	7/1/2012	11/30/2013	UT
Fluorene	7/1/2012	11/30/2013	UT
Hexachlorobenzene	7/1/2012	11/30/2013	UT
Hexachlorobutadiene	7/1/2012	11/30/2013	UT
Hexachlorocyclopentadiene	7/1/2012	11/30/2013	UT

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**Program/Matrix: RCRA (Non Potable Water)**

Hexachloroethane	7/1/2012	11/30/2013	UT
Hexachloropropene	7/1/2012	11/30/2013	UT
Indeno(1,2,3-cd) pyrene	7/1/2012	11/30/2013	UT
Isophorone	7/1/2012	11/30/2013	UT
Isosafrole	7/1/2012	11/30/2013	UT
Methyl methanesulfonate	7/1/2012	11/30/2013	UT
Naphthalene	7/1/2012	11/30/2013	UT
Nitrobenzene	7/1/2012	11/30/2013	UT
n-Nitrosodiethylamine	7/1/2012	11/30/2013	UT
n-Nitrosodimethylamine	7/1/2012	11/30/2013	UT
n-Nitroso-di-n-butylamine	7/1/2012	11/30/2013	UT
n-Nitrosodi-n-propylamine	7/1/2012	11/30/2013	UT
n-Nitrosodiphenylamine	7/1/2012	11/30/2013	UT
n-Nitrosomethylethylamine	7/1/2012	11/30/2013	UT
n-Nitrosomorpholine	7/1/2012	11/30/2013	UT
n-Nitrosopiperidine	7/1/2012	11/30/2013	UT
n-Nitrosopyrrolidine	7/1/2012	11/30/2013	UT
Pentachlorobenzene	7/1/2012	11/30/2013	UT
Pentachloronitrobenzene	7/1/2012	11/30/2013	UT
Pentachlorophenol	7/1/2012	11/30/2013	UT
Phenacetin	7/1/2012	11/30/2013	UT
Phenanthrene	7/1/2012	11/30/2013	UT
Phenol	7/1/2012	11/30/2013	UT
Pyrene	7/1/2012	11/30/2013	UT
Pyridine	7/1/2012	11/30/2013	UT
Safrole	7/1/2012	11/30/2013	UT
<b>Method EPA 901.1</b>			
Cesium-134	7/1/2012	11/30/2013	UT
Cesium-137	7/1/2012	11/30/2013	UT
Cobalt-60	7/1/2012	11/30/2013	UT
<b>Method EPA 9010C</b>			
Cyanide	7/1/2012	11/30/2013	UT
<b>Method EPA 9013A</b>			
Preparation/Extraction	7/1/2012	11/30/2013	UT
<b>Method EPA 9014</b>			
Cyanide	7/1/2012	11/30/2013	UT
<b>Method EPA 9034</b>			
Total sulfides	7/1/2012	11/30/2013	UT
<b>Method EPA 9040C</b>			
pH	7/1/2012	11/30/2013	UT
<b>Method EPA 9050A</b>			
Conductivity	7/1/2012	11/30/2013	UT
<b>Method EPA 9056A</b>			
Bromide	7/1/2012	11/30/2013	UT
Chloride	7/1/2012	11/30/2013	UT
Fluoride	7/1/2012	11/30/2013	UT
Nitrate as N	7/1/2012	11/30/2013	UT



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**Program/Matrix: RCRA (Non Potable Water)**

Nitrite as N	7/1/2012	11/30/2013	UT
Orthophosphate as P	7/1/2012	11/30/2013	UT
Sulfate	7/1/2012	11/30/2013	UT
<b>Method EPA 906.0</b>			
Tritium	7/1/2012	11/30/2013	UT
<b>Method EPA 9060A</b>			
Total organic carbon	7/1/2012	11/30/2013	UT
<b>Method EPA 9214</b>			
Fluoride	7/1/2012	11/30/2013	UT
<b>Method EPA 9310</b>			
Gross alpha-beta	7/1/2012	11/30/2013	UT
<b>Method EPA 9315</b>			
Total alpha radium	7/1/2012	11/30/2013	UT
<b>Method EPA 9320</b>			
Radium-228	7/1/2012	11/30/2013	UT
<b>Method EPA RSK-175 (GC/FID)</b>			
Ethane	7/1/2012	11/30/2013	UT
Ethene	7/1/2012	11/30/2013	UT
Methane	7/1/2012	11/30/2013	UT
n-Propane	7/1/2012	11/30/2013	UT
<b>Method HASL 300 Ga-01-R sec 4.5.2.3</b>			
Cesium-134	7/1/2012	11/30/2013	UT
Cesium-137	7/1/2012	11/30/2013	UT
Cobalt-60	7/1/2012	11/30/2013	UT
<b>Method HASL 300 Sr-01-RC (GPC)</b>			
Strontium-89, 90	7/1/2012	11/30/2013	UT
<b>Method HASL 300 U-02-RC</b>			
Americium-241	7/1/2012	11/30/2013	UT
Plutonium	7/1/2012	11/30/2013	UT
Thorium-228	7/1/2012	11/30/2013	UT
Thorium-230	7/1/2012	11/30/2013	UT
Thorium-232	7/1/2012	11/30/2013	UT
<b>Method SM 7500-Ra C (SC)</b>			
Radium-226	7/1/2012	11/30/2013	UT

**Program/Matrix: RCRA (Solid & Hazardous Material)****Method ASTM D3972-90**

Thorium-228	7/1/2012	11/30/2013	UT
Thorium-230	7/1/2012	11/30/2013	UT
Thorium-232	7/1/2012	11/30/2013	UT

**Method EPA 053917 p. 33 EMSL LV**

Thorium-228	7/1/2012	11/30/2013	UT
Thorium-230	7/1/2012	11/30/2013	UT
Thorium-232	7/1/2012	11/30/2013	UT

**Method EPA 1010A**

Ignitability	7/1/2012	11/30/2013	UT
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**Method EPA 1110A**

Corrosivity toward steel	7/1/2012	11/30/2013	UT
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**Method EPA 1311**

Toxicity Characteristic Leaching Procedure Metals	7/1/2012	11/30/2013	UT
Toxicity Characteristic Leaching Procedure Semi-Volatiles	7/1/2012	11/30/2013	UT
Toxicity Characteristic Leaching Procedure Volatiles	7/1/2012	11/30/2013	UT

**Method EPA 1312**

Preparation/Extraction	7/1/2012	11/30/2013	UT
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**Method EPA 3050B**

Preparation/Extraction	7/1/2012	11/30/2013	UT
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**Method EPA 3060A**

Preparation/Extraction	7/1/2012	11/30/2013	UT
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**Method EPA 3540C**

Preparation/Extraction	7/1/2012	11/30/2013	UT
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**Method EPA 3580A**

Preparation/Extraction	7/1/2012	11/30/2013	UT
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**Method EPA 3620B**

Preparation/Extraction	7/1/2012	11/30/2013	UT
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**Method EPA 3630C**

Preparation/Extraction	7/1/2012	11/30/2013	UT
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**Method EPA 3640A**

Preparation/Extraction	7/1/2012	11/30/2013	UT
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**Method EPA 3660A**

Preparation/Extraction	7/1/2012	11/30/2013	UT
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**Method EPA 5035A**

Preparation/Extraction	1/23/2013	11/30/2013	UT
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**Method EPA 6010B**

Aluminum	7/1/2012	11/30/2013	UT
Antimony	7/1/2012	11/30/2013	UT
Arsenic	7/1/2012	11/30/2013	UT
Barium	7/1/2012	11/30/2013	UT
Beryllium	7/1/2012	11/30/2013	UT
Boron	7/1/2012	11/30/2013	UT
Cadmium	7/1/2012	11/30/2013	UT
Calcium	7/1/2012	11/30/2013	UT

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**Program/Matrix: RCRA (Solid & Hazardous Material)**

Chromium	7/1/2012	11/30/2013	UT
Cobalt	7/1/2012	11/30/2013	UT
Copper	7/1/2012	11/30/2013	UT
Iron	7/1/2012	11/30/2013	UT
Lead	7/1/2012	11/30/2013	UT
Lithium	7/1/2012	11/30/2013	UT
Magnesium	7/1/2012	11/30/2013	UT
Manganese	7/1/2012	11/30/2013	UT
Molybdenum	7/1/2012	11/30/2013	UT
Nickel	7/1/2012	11/30/2013	UT
Phosphorus, total	7/1/2012	11/30/2013	UT
Potassium	7/1/2012	11/30/2013	UT
Selenium	7/1/2012	11/30/2013	UT
Silica as SiO2	7/1/2012	11/30/2013	UT
Silicon	7/1/2012	11/30/2013	UT
Silver	7/1/2012	11/30/2013	UT
Sodium	7/1/2012	11/30/2013	UT
Strontium	7/1/2012	11/30/2013	UT
Thallium	7/1/2012	11/30/2013	UT
Tin	7/1/2012	11/30/2013	UT
Titanium	7/1/2012	11/30/2013	UT
Vanadium	7/1/2012	11/30/2013	UT
Zinc	7/1/2012	11/30/2013	UT

**Method EPA 6020A**

Aluminum	7/1/2012	11/30/2013	UT
Antimony	7/1/2012	11/30/2013	UT
Arsenic	7/1/2012	11/30/2013	UT
Cadmium	7/1/2012	11/30/2013	UT
Calcium	7/1/2012	11/30/2013	UT
Copper	7/1/2012	11/30/2013	UT
Iron	7/1/2012	11/30/2013	UT
Lead	7/1/2012	11/30/2013	UT
Magnesium	7/1/2012	11/30/2013	UT
Molybdenum	7/1/2012	11/30/2013	UT
Nickel	7/1/2012	11/30/2013	UT
Potassium	7/1/2012	11/30/2013	UT
Selenium	7/1/2012	11/30/2013	UT
Silver	7/1/2012	11/30/2013	UT
Strontium	7/1/2012	11/30/2013	UT
Thallium	7/1/2012	11/30/2013	UT
Thorium	7/1/2012	11/30/2013	UT
Uranium	7/1/2012	11/30/2013	UT
Vanadium	7/1/2012	11/30/2013	UT

**Method EPA 7196A**

Chromium VI	7/1/2012	11/30/2013	UT
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**Method EPA 7471A**

Mercury	7/1/2012	11/30/2013	UT
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**Method EPA 8015D**

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Start Date Expires AB

**Program/Matrix: RCRA (Solid & Hazardous Material)**

Diesel range organics (DRO)	7/1/2012	11/30/2013	UT
Ethylene glycol	7/1/2012	11/30/2013	UT
Gasoline range organics (GRO)	7/1/2012	11/30/2013	UT

**Method EPA 8081A**

4,4'-DDD	7/1/2012	11/30/2013	UT
4,4'-DDE	7/1/2012	11/30/2013	UT
4,4'-DDT	7/1/2012	11/30/2013	UT
Aldrin	7/1/2012	11/30/2013	UT
alpha-BHC (alpha-Hexachlorocyclohexane)	7/1/2012	11/30/2013	UT
alpha-Chlordane	7/1/2012	11/30/2013	UT
beta-BHC (beta-Hexachlorocyclohexane)	7/1/2012	11/30/2013	UT
Chlordane (tech.)	7/1/2012	11/30/2013	UT
delta-BHC	7/1/2012	11/30/2013	UT
Dieldrin	7/1/2012	11/30/2013	UT
Endosulfan I	7/1/2012	11/30/2013	UT
Endosulfan II	7/1/2012	11/30/2013	UT
Endosulfan sulfate	7/1/2012	11/30/2013	UT
Endrin	7/1/2012	11/30/2013	UT
Endrin aldehyde	7/1/2012	11/30/2013	UT
Endrin ketone	7/1/2012	11/30/2013	UT
gamma-BHC (Lindane, gamma-Hexachlorocyclohexane)	7/1/2012	11/30/2013	UT
gamma-Chlordane	7/1/2012	11/30/2013	UT
Heptachlor	7/1/2012	11/30/2013	UT
Heptachlor epoxide	7/1/2012	11/30/2013	UT
Methoxychlor	7/1/2012	11/30/2013	UT
Toxaphene (Chlorinated camphene)	7/1/2012	11/30/2013	UT

**Method EPA 8082**

Aroclor-1016 (PCB-1016)	7/1/2012	11/30/2013	UT
Aroclor-1221 (PCB-1221)	7/1/2012	11/30/2013	UT
Aroclor-1232 (PCB-1232)	7/1/2012	11/30/2013	UT
Aroclor-1242 (PCB-1242)	7/1/2012	11/30/2013	UT
Aroclor-1248 (PCB-1248)	7/1/2012	11/30/2013	UT
Aroclor-1254 (PCB-1254)	7/1/2012	11/30/2013	UT
Aroclor-1260 (PCB-1260)	7/1/2012	11/30/2013	UT
Aroclor-1268 (PCB-1268)	7/1/2012	11/30/2013	UT
PCBs	7/1/2012	11/30/2013	UT

**Method EPA 8141A**

Azinphos-methyl (Guthion)	7/1/2012	11/30/2013	UT
Bolstar (Sulprofos)	7/1/2012	11/30/2013	UT
Chlorpyrifos	7/1/2012	11/30/2013	UT
Coumaphos	7/1/2012	11/30/2013	UT
Demeton-o	7/1/2012	11/30/2013	UT
Demeton-s	7/1/2012	11/30/2013	UT
Diazinon	7/1/2012	11/30/2013	UT
Dichlorvos (DDVP, Dichlorvos)	7/1/2012	11/30/2013	UT
Disulfoton	7/1/2012	11/30/2013	UT
Ethoprop	7/1/2012	11/30/2013	UT
Fensulfothion	7/1/2012	11/30/2013	UT



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**Program/Matrix: RCRA (Solid & Hazardous Material)**

Fenthion	7/1/2012	11/30/2013	UT
Malathion	7/1/2012	11/30/2013	UT
Merphos	7/1/2012	11/30/2013	UT
Methyl parathion (Parathion, methyl)	7/1/2012	11/30/2013	UT
Mevinphos	7/1/2012	11/30/2013	UT
Naled	7/1/2012	11/30/2013	UT
Phorate	7/1/2012	11/30/2013	UT
Ronnel	7/1/2012	11/30/2013	UT
Tetrachlorvinphos (Stirophos, Gardona) Z-isomer	7/1/2012	11/30/2013	UT
Tokuthion (Prothiophos)	7/1/2012	11/30/2013	UT
Trichloronate	7/1/2012	11/30/2013	UT

**Method EPA 8151A**

2,4,5-T	7/1/2012	11/30/2013	UT
2,4-D	7/1/2012	11/30/2013	UT
2,4-DB	7/1/2012	11/30/2013	UT
Dalapon	7/1/2012	11/30/2013	UT
Dicamba	7/1/2012	11/30/2013	UT
Dichloroprop (Dichloroprop)	7/1/2012	11/30/2013	UT
Dinoseb (2-sec-butyl-4,6-dinitrophenol, DNBP)	7/1/2012	11/30/2013	UT
MCPA	7/1/2012	11/30/2013	UT
MCPP	7/1/2012	11/30/2013	UT
Silvex (2,4,5-TP)	7/1/2012	11/30/2013	UT

**Method EPA 8260C**

1,1,1,2-Tetrachloroethane	7/1/2012	11/30/2013	UT
1,1,1-Trichloroethane	7/1/2012	11/30/2013	UT
1,1,2,2-Tetrachloroethane	7/1/2012	11/30/2013	UT
1,1,2-Trichloroethane	7/1/2012	11/30/2013	UT
1,1-Dichloroethane	7/1/2012	11/30/2013	UT
1,1-Dichloroethylene	7/1/2012	11/30/2013	UT
1,2,3-Trichlorobenzene	7/1/2012	11/30/2013	UT
1,2,3-Trichloropropane	7/1/2012	11/30/2013	UT
1,2,3-Trimethylbenzene	7/1/2012	11/30/2013	UT
1,2,4-Trichlorobenzene	7/1/2012	11/30/2013	UT
1,2-Dibromo-3-chloropropane (DBCP)	7/1/2012	11/30/2013	UT
1,2-Dibromoethane (EDB, Ethylene dibromide)	7/1/2012	11/30/2013	UT
1,2-Dichlorobenzene (o-Dichlorobenzene)	7/1/2012	11/30/2013	UT
1,2-Dichloroethane (Ethylene dichloride)	7/1/2012	11/30/2013	UT
1,2-Dichloropropane	7/1/2012	11/30/2013	UT
1,3,5-Trimethylbenzene	7/1/2012	11/30/2013	UT
1,3-Dichlorobenzene	7/1/2012	11/30/2013	UT
1,3-Dichloropropene	7/1/2012	11/30/2013	UT
1,4-Dichlorobenzene	7/1/2012	11/30/2013	UT
1,4-Dioxane (1,4- Diethyleneoxide)	7/1/2012	11/30/2013	UT
1-Chlorobutane	1/23/2013	11/30/2013	UT
1-Chlorohexane	7/1/2012	11/30/2013	UT
2,2-Dichloropropane	7/1/2012	11/30/2013	UT
2-Butanone (Methyl ethyl ketone, MEK)	7/1/2012	11/30/2013	UT
2-Chloroethyl vinyl ether	7/1/2012	11/30/2013	UT

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Start Date	Expires	AB
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**Program/Matrix: RCRA (Solid & Hazardous Material)**

2-Chlorotoluene	7/1/2012	11/30/2013	UT
2-Hexanone	7/1/2012	11/30/2013	UT
4-Chlorotoluene	7/1/2012	11/30/2013	UT
4-Isopropyltoluene (p-Cymene,p-Isopropyltoluene)	7/1/2012	11/30/2013	UT
4-Methyl-2-pentanone (MIBK)	7/1/2012	11/30/2013	UT
Acetone	7/1/2012	11/30/2013	UT
Acetonitrile	7/1/2012	11/30/2013	UT
Acrolein (Propenal)	7/1/2012	11/30/2013	UT
Acrylonitrile	7/1/2012	11/30/2013	UT
Allyl chloride (3-Chloropropene)	7/1/2012	11/30/2013	UT
Benzene	7/1/2012	11/30/2013	UT
Bromobenzene	7/1/2012	11/30/2013	UT
Bromochloromethane	7/1/2012	11/30/2013	UT
Bromodichloromethane	7/1/2012	11/30/2013	UT
Bromoform	7/1/2012	11/30/2013	UT
Carbon disulfide	7/1/2012	11/30/2013	UT
Carbon tetrachloride	7/1/2012	11/30/2013	UT
Chloroacetonitrile	1/23/2013	11/30/2013	UT
Chlorobenzene	7/1/2012	11/30/2013	UT
Chlorodibromomethane	7/1/2012	11/30/2013	UT
Chloroethane (Ethyl chloride)	7/1/2012	11/30/2013	UT
Chloroform	7/1/2012	11/30/2013	UT
Chloroprene (2-Chloro-1,3-butadiene)	7/1/2012	11/30/2013	UT
cis-1,2-Dichloroethylene	7/1/2012	11/30/2013	UT
cis-1,3-Dichloropropene	7/1/2012	11/30/2013	UT
Dibromomethane (Methylene bromide)	7/1/2012	11/30/2013	UT
Dichlorodifluoromethane (Freon-12)	7/1/2012	11/30/2013	UT
Diethyl ether	7/1/2012	11/30/2013	UT
Ethanol	7/1/2012	11/30/2013	UT
Ethyl methacrylate	7/1/2012	11/30/2013	UT
Ethylbenzene	7/1/2012	11/30/2013	UT
Hexachlorobutadiene	7/1/2012	11/30/2013	UT
Hexachloroethane	7/1/2012	11/30/2013	UT
Iodomethane (Methyl iodide)	7/1/2012	11/30/2013	UT
Isobutyl alcohol (2-Methyl-1-propanol)	7/1/2012	11/30/2013	UT
Isopropylbenzene	7/1/2012	11/30/2013	UT
Methacrylonitrile	7/1/2012	11/30/2013	UT
Methyl acrylate	1/23/2013	11/30/2013	UT
Methyl bromide (Bromomethane)	7/1/2012	11/30/2013	UT
Methyl chloride (Chloromethane)	7/1/2012	11/30/2013	UT
Methyl methacrylate	7/1/2012	11/30/2013	UT
Methyl tert-butyl ether (MTBE)	7/1/2012	11/30/2013	UT
Methylene chloride (Dichloromethane)	7/1/2012	11/30/2013	UT
m-Xylene	7/1/2012	11/30/2013	UT
Naphthalene	7/1/2012	11/30/2013	UT
n-Butyl alcohol (1-Butanol, n-Butanol)	7/1/2012	11/30/2013	UT
n-Butylbenzene	7/1/2012	11/30/2013	UT
n-Propylbenzene	7/1/2012	11/30/2013	UT
o-Xylene	7/1/2012	11/30/2013	UT

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Start Date	Expires	AB
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**Program/Matrix: RCRA (Solid & Hazardous Material)**

Pentafluorobenzene	1/23/2013	11/30/2013	UT
Propionitrile (Ethyl cyanide)	7/1/2012	11/30/2013	UT
p-Xylene	7/1/2012	11/30/2013	UT
sec-Butylbenzene	7/1/2012	11/30/2013	UT
Styrene	7/1/2012	11/30/2013	UT
Tetrachloroethylene (Perchloroethylene)	7/1/2012	11/30/2013	UT
Toluene	7/1/2012	11/30/2013	UT
trans-1,2-Dichloroethylene	7/1/2012	11/30/2013	UT
trans-1,3-Dichloropropylene	7/1/2012	11/30/2013	UT
trans-1,4-Dichloro-2-butene	7/1/2012	11/30/2013	UT
Trichloroethene (Trichloroethylene)	7/1/2012	11/30/2013	UT
Trichlorofluoromethane (Fluorotrichloromethane, Freon 11)	7/1/2012	11/30/2013	UT
Vinyl acetate	7/1/2012	11/30/2013	UT
Vinyl chloride	7/1/2012	11/30/2013	UT
Xylene (total)	7/1/2012	11/30/2013	UT

**Method EPA 8270D**

1,2,4,5-Tetrachlorobenzene	7/1/2012	11/30/2013	UT
1,2,4-Trichlorobenzene	7/1/2012	11/30/2013	UT
1,2-Dichlorobenzene (o-Dichlorobenzene)	7/1/2012	11/30/2013	UT
1,2-Dinitrobenzene	7/1/2012	11/30/2013	UT
1,3,5-Trinitrobenzene (1,3,5-TNB)	7/1/2012	11/30/2013	UT
1,3-Dichlorobenzene	7/1/2012	11/30/2013	UT
1,3-Dinitrobenzene (1,3-DNB)	7/1/2012	11/30/2013	UT
1,4-Dichlorobenzene	7/1/2012	11/30/2013	UT
1,4-Dinitrobenzene	7/1/2012	11/30/2013	UT
1-Methylnaphthalene	7/1/2012	11/30/2013	UT
1-Naphthylamine	7/1/2012	11/30/2013	UT
2,3,4,6-Tetrachlorophenol	7/1/2012	11/30/2013	UT
2,4,5-Trichlorophenol	7/1/2012	11/30/2013	UT
2,4,6-Trichlorophenol	7/1/2012	11/30/2013	UT
2,4-Dichlorophenol	7/1/2012	11/30/2013	UT
2,4-Dimethylphenol	7/1/2012	11/30/2013	UT
2,4-Dinitrophenol	7/1/2012	11/30/2013	UT
2,4-Dinitrotoluene (2,4-DNT)	7/1/2012	11/30/2013	UT
2,6-Dichlorophenol	7/1/2012	11/30/2013	UT
2,6-Dinitrotoluene (2,6-DNT)	7/1/2012	11/30/2013	UT
2-Acetylaminofluorene	7/1/2012	11/30/2013	UT
2-Chloronaphthalene	7/1/2012	11/30/2013	UT
2-Chlorophenol	7/1/2012	11/30/2013	UT
2-Methyl-4,6-dinitrophenol (4,6-Dinitro-2-methylphenol)	7/1/2012	11/30/2013	UT
2-Methylnaphthalene	7/1/2012	11/30/2013	UT
2-Methylphenol (o-Cresol)	7/1/2012	11/30/2013	UT
2-Naphthylamine	7/1/2012	11/30/2013	UT
2-Nitroaniline	7/1/2012	11/30/2013	UT
2-Nitrophenol	7/1/2012	11/30/2013	UT
3,3'-Dichlorobenzidine	7/1/2012	11/30/2013	UT
3-Methylcholanthrene	7/1/2012	11/30/2013	UT
3-Methylphenol (m-Cresol)	7/1/2012	11/30/2013	UT

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**Program/Matrix: RCRA (Solid & Hazardous Material)**

3-Nitroaniline	7/1/2012	11/30/2013	UT
4-Bromophenyl phenyl ether	7/1/2012	11/30/2013	UT
4-Chloro-3-methylphenol	7/1/2012	11/30/2013	UT
4-Chloroaniline	7/1/2012	11/30/2013	UT
4-Chlorophenyl phenylether	7/1/2012	11/30/2013	UT
4-Methylphenol (p-Cresol)	7/1/2012	11/30/2013	UT
4-Nitroaniline	7/1/2012	11/30/2013	UT
4-Nitrophenol	7/1/2012	11/30/2013	UT
5-Nitro-o-toluidine	7/1/2012	11/30/2013	UT
7,12-Dimethylbenz(a) anthracene	7/1/2012	11/30/2013	UT
Acenaphthene	7/1/2012	11/30/2013	UT
Acenaphthylene	7/1/2012	11/30/2013	UT
Acetophenone	7/1/2012	11/30/2013	UT
Aniline	7/1/2012	11/30/2013	UT
Anthracene	7/1/2012	11/30/2013	UT
Azobenzene (1,2-Diphenylhydrazine)	7/1/2012	11/30/2013	UT
Benzidine	7/1/2012	11/30/2013	UT
Benzo(a)anthracene	7/1/2012	11/30/2013	UT
Benzo(a)pyrene	7/1/2012	11/30/2013	UT
Benzo(b)fluoranthene	7/1/2012	11/30/2013	UT
Benzo(g,h,i)perylene	7/1/2012	11/30/2013	UT
Benzo(k)fluoranthene	7/1/2012	11/30/2013	UT
Benzoic acid	7/1/2012	11/30/2013	UT
Benzyl alcohol	7/1/2012	11/30/2013	UT
bis(2-Chloroethoxy)methane	7/1/2012	11/30/2013	UT
bis(2-Chloroethyl) ether	7/1/2012	11/30/2013	UT
bis(2-Chloroisopropyl) ether	7/1/2012	11/30/2013	UT
bis(2-Ethylhexyl) phthalate (DEHP)	7/1/2012	11/30/2013	UT
Butyl benzyl phthalate	7/1/2012	11/30/2013	UT
Carbazole	7/1/2012	11/30/2013	UT
Chrysene	7/1/2012	11/30/2013	UT
Dibenz(a,h) anthracene	7/1/2012	11/30/2013	UT
Dibenzofuran	7/1/2012	11/30/2013	UT
Diethyl phthalate	7/1/2012	11/30/2013	UT
Dimethyl phthalate	7/1/2012	11/30/2013	UT
Di-n-butyl phthalate	7/1/2012	11/30/2013	UT
Di-n-octyl phthalate	7/1/2012	11/30/2013	UT
Ethyl methanesulfonate	7/1/2012	11/30/2013	UT
Fluoranthene	7/1/2012	11/30/2013	UT
Fluorene	7/1/2012	11/30/2013	UT
Hexachlorobenzene	7/1/2012	11/30/2013	UT
Hexachlorobutadiene	7/1/2012	11/30/2013	UT
Hexachlorocyclopentadiene	7/1/2012	11/30/2013	UT
Hexachloroethane	7/1/2012	11/30/2013	UT
Hexachloropropene	7/1/2012	11/30/2013	UT
Indeno(1,2,3-cd) pyrene	7/1/2012	11/30/2013	UT
Isophorone	7/1/2012	11/30/2013	UT
Isosafrole	7/1/2012	11/30/2013	UT
Methyl methanesulfonate	7/1/2012	11/30/2013	UT



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**Program/Matrix: RCRA (Solid & Hazardous Material)**

Naphthalene	7/1/2012	11/30/2013	UT
Nitrobenzene	7/1/2012	11/30/2013	UT
n-Nitrosodiethylamine	7/1/2012	11/30/2013	UT
n-Nitrosodimethylamine	7/1/2012	11/30/2013	UT
n-Nitroso-di-n-butylamine	7/1/2012	11/30/2013	UT
n-Nitrosodi-n-propylamine	7/1/2012	11/30/2013	UT
n-Nitrosodiphenylamine	7/1/2012	11/30/2013	UT
n-Nitrosomethylethylamine	7/1/2012	11/30/2013	UT
n-Nitrosomorpholine	7/1/2012	11/30/2013	UT
n-Nitrosopiperidine	7/1/2012	11/30/2013	UT
n-Nitrosopyrrolidine	7/1/2012	11/30/2013	UT
Pentachlorobenzene	7/1/2012	11/30/2013	UT
Pentachloronitrobenzene	7/1/2012	11/30/2013	UT
Pentachlorophenol	7/1/2012	11/30/2013	UT
Phenacetin	7/1/2012	11/30/2013	UT
Phenanthrene	7/1/2012	11/30/2013	UT
Phenol	7/1/2012	11/30/2013	UT
Pyrene	7/1/2012	11/30/2013	UT
Pyridine	7/1/2012	11/30/2013	UT
Safrole	7/1/2012	11/30/2013	UT

**Method EPA 901.1**

Cesium-134	7/1/2012	11/30/2013	UT
Cesium-137	7/1/2012	11/30/2013	UT
Cobalt-60	7/1/2012	11/30/2013	UT

**Method EPA 9010C**

Cyanide	7/1/2012	11/30/2013	UT
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**Method EPA 9014**

Cyanide	7/1/2012	11/30/2013	UT
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**Method EPA 903.1**

Radium-226	1/23/2013	11/30/2013	UT
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**Method EPA 9034**

Total sulfides	7/1/2012	11/30/2013	UT
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**Method EPA 9045C**

pH	7/1/2012	11/30/2013	UT
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**Method EPA 9056A**

Bromide	7/1/2012	11/30/2013	UT
Chloride	7/1/2012	11/30/2013	UT
Fluoride	7/1/2012	11/30/2013	UT
Nitrate as N	7/1/2012	11/30/2013	UT
Nitrite as N	7/1/2012	11/30/2013	UT
Orthophosphate as P	7/1/2012	11/30/2013	UT
Sulfate	7/1/2012	11/30/2013	UT

**Method EPA 9071B**

Oil & Grease	7/1/2012	11/30/2013	UT
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**Method EPA 9095B**

Free liquid	7/1/2012	11/30/2013	UT
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Start Date	Expires	AB
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**Program/Matrix: RCRA (Solid & Hazardous Material)****Method EPA 9310**

Gross alpha-beta	7/1/2012	11/30/2013	UT
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**Method EPA 9315**

Total alpha radium	7/1/2012	11/30/2013	UT
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**Method EPA 9320**

Radium-228	7/1/2012	11/30/2013	UT
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**Method EPA H2S Test Method**

Reactive sulfide	7/1/2012	11/30/2013	UT
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**Method EPA HCN Test Method**

Reactive Cyanide	7/1/2012	11/30/2013	UT
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**Method HASL 300 Ga-01-R sec 4.5.2.3**

Cesium-134	7/1/2012	11/30/2013	UT
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Cesium-137	7/1/2012	11/30/2013	UT
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Cobalt-60	7/1/2012	11/30/2013	UT
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**Method HASL 300 Sr-01-RC (GPC)**

Strontium-89, 90	7/1/2012	11/30/2013	UT
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**Method HASL 300 U-02-RC**

Americium-241	7/1/2012	11/30/2013	UT
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Plutonium	7/1/2012	11/30/2013	UT
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Thorium-228	7/1/2012	11/30/2013	UT
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Thorium-230	7/1/2012	11/30/2013	UT
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Thorium-232	7/1/2012	11/30/2013	UT
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**Method SM 7500-Ra C (SC)**

Radium-226	7/1/2012	11/30/2013	UT
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**Program/Matrix: SDWA (Potable Water)****Method ASTM D3972-90**

Uranium	7/1/2012	11/30/2013	UT
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**Method ASTM D5811-00**

Strontium-90	7/1/2012	11/30/2013	UT
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**Method EPA 120.1**

Conductivity	7/1/2012	11/30/2013	UT
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**Method EPA 150.1**

pH	7/1/2012	11/30/2013	UT
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**Method EPA 160.1**

Residue-filterable (TDS)	7/1/2012	11/30/2013	UT
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**Method EPA 200.7**

Aluminum	7/1/2012	11/30/2013	UT
Antimony	7/1/2012	11/30/2013	UT
Arsenic	7/1/2012	11/30/2013	UT
Barium	7/1/2012	11/30/2013	UT
Beryllium	7/1/2012	11/30/2013	UT
Boron	7/1/2012	11/30/2013	UT
Cadmium	7/1/2012	11/30/2013	UT
Calcium	7/1/2012	11/30/2013	UT
Chromium	7/1/2012	11/30/2013	UT
Cobalt	7/1/2012	11/30/2013	UT
Copper	7/1/2012	11/30/2013	UT
Iron	7/1/2012	11/30/2013	UT
Lead	7/1/2012	11/30/2013	UT
Lithium	7/1/2012	11/30/2013	UT
Magnesium	7/1/2012	11/30/2013	UT
Manganese	7/1/2012	11/30/2013	UT
Molybdenum	7/1/2012	11/30/2013	UT
Nickel	7/1/2012	11/30/2013	UT
Potassium	7/1/2012	11/30/2013	UT
Selenium	7/1/2012	11/30/2013	UT
Silica as SiO <sub>2</sub>	7/1/2012	11/30/2013	UT
Silver	7/1/2012	11/30/2013	UT
Sodium	7/1/2012	11/30/2013	UT
Strontium	7/1/2012	11/30/2013	UT
Thallium	7/1/2012	11/30/2013	UT
Tin	7/1/2012	11/30/2013	UT
Titanium	7/1/2012	11/30/2013	UT
Vanadium	7/1/2012	11/30/2013	UT
Zinc	7/1/2012	11/30/2013	UT

**Method EPA 200.8**

Aluminum	7/1/2012	11/30/2013	UT
Antimony	7/1/2012	11/30/2013	UT
Arsenic	7/1/2012	11/30/2013	UT
Barium	7/1/2012	11/30/2013	UT
Beryllium	7/1/2012	11/30/2013	UT
Cadmium	7/1/2012	11/30/2013	UT

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**Program/Matrix: SDWA (Potable Water)**

Calcium	7/1/2012	11/30/2013	UT
Chromium	7/1/2012	11/30/2013	UT
Copper	7/1/2012	11/30/2013	UT
Iron	7/1/2012	11/30/2013	UT
Lead	7/1/2012	11/30/2013	UT
Magnesium	7/1/2012	11/30/2013	UT
Manganese	7/1/2012	11/30/2013	UT
Molybdenum	7/1/2012	11/30/2013	UT
Nickel	7/1/2012	11/30/2013	UT
Potassium	7/1/2012	11/30/2013	UT
Selenium	7/1/2012	11/30/2013	UT
Silver	7/1/2012	11/30/2013	UT
Sodium	7/1/2012	11/30/2013	UT
Strontium	7/1/2012	11/30/2013	UT
Thallium	7/1/2012	11/30/2013	UT
Thorium	7/1/2012	11/30/2013	UT
Tin	7/1/2012	11/30/2013	UT
Uranium	7/1/2012	11/30/2013	UT
Vanadium	7/1/2012	11/30/2013	UT
Zinc	7/1/2012	11/30/2013	UT

**Method EPA 245.1**

Mercury	7/1/2012	11/30/2013	UT
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**Method EPA 300.0**

Bromide	7/1/2012	11/30/2013	UT
Chloride	7/1/2012	11/30/2013	UT
Fluoride	7/1/2012	11/30/2013	UT
Nitrate as N	7/1/2012	11/30/2013	UT
Nitrite as N	7/1/2012	11/30/2013	UT
Orthophosphate as P	7/1/2012	11/30/2013	UT
Sulfate	7/1/2012	11/30/2013	UT

**Method EPA 310.1**

Alkalinity as CaCO3	7/1/2012	11/30/2013	UT
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**Method EPA 314**

Perchlorate	7/1/2012	11/30/2013	UT
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**Method EPA 335.2**

Cyanide	7/1/2012	11/30/2013	UT
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**Method EPA 524.2**

1,1,1-Trichloroethane	7/1/2012	11/30/2013	UT
1,1,2-Trichloroethane	7/1/2012	11/30/2013	UT
1,1-Dichloroethylene	7/1/2012	11/30/2013	UT
1,2,4-Trichlorobenzene	7/1/2012	11/30/2013	UT
1,2-Dichlorobenzene (o-Dichlorobenzene)	7/1/2012	11/30/2013	UT
1,2-Dichloroethane (Ethylene dichloride)	7/1/2012	11/30/2013	UT
1,2-Dichloropropane	7/1/2012	11/30/2013	UT
1,4-Dichlorobenzene	7/1/2012	11/30/2013	UT
Benzene	7/1/2012	11/30/2013	UT
Carbon tetrachloride	7/1/2012	11/30/2013	UT



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**Program/Matrix: SDWA (Potable Water)**

Chlorobenzene	7/1/2012	11/30/2013	UT
cis-1,2-Dichloroethylene	7/1/2012	11/30/2013	UT
Ethylbenzene	7/1/2012	11/30/2013	UT
Methylene chloride (Dichloromethane)	7/1/2012	11/30/2013	UT
m-Xylene	7/1/2012	11/30/2013	UT
o-Xylene	7/1/2012	11/30/2013	UT
p-Xylene	7/1/2012	11/30/2013	UT
Styrene	7/1/2012	11/30/2013	UT
Tetrachloroethylene (Perchloroethylene)	7/1/2012	11/30/2013	UT
Toluene	7/1/2012	11/30/2013	UT
trans-1,2-Dichloroethylene	7/1/2012	11/30/2013	UT
Trichloroethene (Trichloroethylene)	7/1/2012	11/30/2013	UT
Vinyl chloride	7/1/2012	11/30/2013	UT
Xylene (total)	7/1/2012	11/30/2013	UT

**Method EPA 900.0**

Gross-alpha	7/1/2012	11/30/2013	UT
Gross-beta	7/1/2012	11/30/2013	UT

**Method EPA 901.1**

Cesium-134	7/1/2012	11/30/2013	UT
Cesium-137	7/1/2012	11/30/2013	UT
Cobalt-60	7/1/2012	11/30/2013	UT
Gamma Emitters	7/1/2012	11/30/2013	UT

**Method EPA 903**

Radium-226	7/1/2012	11/30/2013	UT
Total radium	7/1/2012	11/30/2013	UT

**Method EPA 903.1**

Radium-226	7/1/2012	11/30/2013	UT
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**Method EPA 904**

Radium-228	7/1/2012	11/30/2013	UT
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**Method EPA 906**

Tritium	7/1/2012	11/30/2013	UT
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**Method HASL 300 Ga-01-R sec 4.5.2.3**

Cesium-134	7/1/2012	11/30/2013	UT
Cesium-137	7/1/2012	11/30/2013	UT
Cobalt-60	7/1/2012	11/30/2013	UT
Gamma Emitters	7/1/2012	11/30/2013	UT

**Method HASL 300 Sr-01-RC (GPC)**

Strontium-89, 90	7/1/2012	11/30/2013	UT
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**Method HASL 300 Sr-02-RC (GPC)**

Strontium-89, 90	7/1/2012	11/30/2013	UT
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**Method HASL 300 U-02-RC**

Americium-241	7/1/2012	11/30/2013	UT
Isotopic uranium	7/1/2012	11/30/2013	UT
Plutonium	7/1/2012	11/30/2013	UT
Uranium	7/1/2012	11/30/2013	UT

**Method SM 2320 B**

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**Program/Matrix: SDWA (Potable Water)**

Alkalinity as CaCO <sub>3</sub>	7/1/2012	11/30/2013	UT
<b>Method SM 2340 B</b>			
Total hardness as CaCO <sub>3</sub>	7/1/2012	11/30/2013	UT
<b>Method SM 2510 B</b>			
Conductivity	7/1/2012	11/30/2013	UT
<b>Method SM 2540 B</b>			
Residue-total	7/1/2012	11/30/2013	UT
<b>Method SM 2540 C</b>			
Residue-filterable (TDS)	7/1/2012	11/30/2013	UT
<b>Method SM 2540 D</b>			
Residue-nonfilterable (TSS)	7/1/2012	11/30/2013	UT
<b>Method SM 4500-H+ B</b>			
pH	7/1/2012	11/30/2013	UT
<b>Method SM 5310 C</b>			
Total organic carbon	7/1/2012	11/30/2013	UT
<b>Method SM 7500-3H B</b>			
Tritium	7/1/2012	11/30/2013	UT
<b>Method SM 7500-Ra C (SC)</b>			
Radium-226	7/1/2012	11/30/2013	UT
<b>Method SM 7500-Rn B</b>			
Radon-222	7/1/2012	11/30/2013	UT

The Utah Environmental Laboratory Certification Program (ELCP) encourages clients and data users to verify the most current certification letter for the authorized method.

The analytes by method which a laboratory is authorized to perform at any given time will be those indicated in the most recent certificate letter. The most recent certification letter supersedes all previous certification or authorization letters. It is the certified laboratory's responsibility to review this letter for discrepancies. The certified laboratory must document any discrepancies in this letter and send notice to this bureau within 15 days of receipt. This certificate letter will be recalled in the event your laboratory's certification is revoked.